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PUBLIC PARTICIPATION AND

TECHNOLOGY ASSESSMENT

A Survey of the Legislative

History of the Office of

Technology Assessment

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INTRODUCTION

This report highlights selected statements which deal with the topic of public participation from the legislative history of the Office of Technology Assessment. This subject, of course, can be interpreted in a variety of ways, and no definitive description of participation by public groups is offered here. But two "dimensions" evolve in the discussions recorded in this paper:

- 1) How can the public be involved in the process of a technology assessment study? and
- 2) If there is to be an organization responsible for "doing" technology assessments, how can the public participate in its policy-making processes?

These two separate themes are often interconnected and fuzzy during the various discussions of the idea of public participation, perhaps because the speakers were often addressing hypothetical issues (if we are to do technology assessment how should it be done?) rather than critiquing specific examples of public involvement. But the statements do indicate an initial assumption that the public would definitely be involved in the TA process. When the legislation under consideration evolved to focus on a specific organization which would do (or, subsequently contract) the TA study, the speakers then questioned what role the public would play in the organizational processes of selecting and reviewing assessment studies as well.

The following trends for public participation are well documented throughout the legislative history publications:

- 1) Decision-making for technology has moved increasingly into the public sphere;
- 2) The allocation of both natural (limited) resources and the costs of technological development are decisions which require public input;

- 3) The "public" includes different groups: affected parties, highly organized groups, diffuse interests, and apathetic members;
- 4) Some of these "publics" are more represented than others, but the present system does not give them all "effective" representation;
- 5) Public participation means something more than access to reports and data, although this is a necessary element in the participation process.

Public participation in technology assessment is also related to the timeworn questions of the role of the expert in a democracy. In various instances, individual witnesses have emphasized the need for objective information in the process of technology assessment as opposed to, and perhaps more important than, the need for full public participation (this perhaps is best summed up in Mesthene's brief remarks on "technology versus chaos" as quoted by Carpenter in 1969, and the recommendations of the study prepared by the National Academy of Engineering in that same year).

It is particularly interesting to note the value of public participation as documented in the various legislative bills proposing the creation of an Office of Technology Assessment (See Appendix B). As originally conceived, the OTA would be governed by a Board which included public members. One witness further recommended in 1970 that the Chairman of the Board be elected from the public members, and this concept was included in one of the later legislative drafts. However, this proposal was eliminated from the final legislation as was the appointment of public members. The appointed public representatives were originally the whole membership of the Board: five in H. R. 6698 (1967). Their membership was then proposed as a majority representation: seven public members on a 13-member Board in H. R. 17046 (1970); then reduced proportions: six public members on a 14-member Board in H. R. 18469 (1970) and four public

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members on a 11-member Board in the original version of H.R. 10243 and S. 2302 (1971). In the Technology Assessment Act as passed by Congress, the Board includes no public members, but an Advisory Council was added to the organizational structure of the OTA to insure public representation in the policy-making activities of the Office.

It is the purpose of this report to review the various proposals and concepts for public participation in technology assessment as documented in the legislative history materials of OTA. Periodical and other published materials on this same topic, professional speeches and papers, have not been included in this study, except in those instances where they were included as appendices or supplementary materials in the congressional documents reviewed. Because the OTA legislation was in a formative and developing stage, much effort was made by Members and committee staffs to elicit outside opinions on the various proposals, including the critical issues or perspectives about the role of public participation in the technology assessment process. During the time period covered by this study (1967-1972), there were some published materials and research in the general field of public participation which were not included in this legislative activity, but very little of this broader set of materials addressed the specific issue of technology assessment. With limited resources and manpower, few advocates of public participation could afford to address themselves to hypothetical organizations and abstract study proposals.

However, in more recent years, the passage of the Technology Assessment Act and the subsequent creation of the Office of Technology Assessment have generated more awareness of the potential relations between the citizen participation process and technology assessment. Some authors

have begun to focus on the specific trends in public participation mechanisms for TA, while others have offered insight into the "public interest science" movement. 1/ Much of this information is not included in the OTA legislative history or operational history materials, yet it contains the ideas which may be shaping the forces and mechanisms for public participation in the future.

A listing of documents reviewed in this project is included in Appendix A. All page numbers at the end of excerpted quotes in the text refer to the document under discussion in that section.

1/ See for example James Carroll's article on "Participatory Technology" (Science, February 1971) or the article prepared by Erasmus Kloman, "Public Participation in Technology Assessment" (Public Administration Review, January/February 1974). Information on public interest groups may be found in several sources, including an article prepared by Martin Perl, Joel Primack and Frank von Hippel, "Public-interest science -- an overview" (Physics Today, June 1974) or descriptions of the activities of specific public interest groups, such as "Technology Assessment: by Whom?" (Public Interest Letter, March 1974) or the first annual report of the National Council on Public Assessment of Technology (NCPAT).

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PUBLIC PARTICIPATION OR PUBLIC INFORMATION? THE TECHNOLOGY
ASSESSMENT SEMINAR (1967)

The Technology Assessment Seminar of 1967, sponsored by the House Subcommittee on Science, Research, and Development, was the first major discussion of possible mechanisms for technology assessment. The participants included members of the subcommittee chaired at this time by Representative Daddario, representatives from various universities with programs in science and society, and persons concerned with the communication of scientific research. The seminar was not a hearing, but was more oriented to a discussion of the concept of technology assessment by panel participants. Other statements were submitted for the record after the seminar, and solicited comments on the seminar transcript were included in the final publication.

The topic of public participation was not addressed in the seminar, but several speakers randomly offered their interpretation of how the public would be involved in the assessment process. The dominant theme in their comments seems to be that of public information; that is, the public will be involved in the process by being informed about the results of the assessment, and attention should be given to the problem of communicating these results accurately. Another prominent idea is public education -- by receiving increased information about the results of technology, the public will be better educated about the trends and progress of scientific research. Selected statements follow:

Milton Leitenberg, Scientific Director, Committee for Environmental Information, St. Louis, Missouri --

The degree to which a new assessment board devises formal mechanisms and channels to reach and educate the public will differentiate it

from past groups, and will define its degree of success in an area where other agencies have failed. (p. 47)

Christopher Wright, Director, Institute for the Study of Science in Human Affairs, Columbia University --

On the question of public information... we have now reached the point where we ought to refine the concepts of public information by realizing that there are many different publics, and that it is no derogation of democracy to recognize that as a statistical matter there are few occasions on which many members of the total population will focus on any one issue simultaneously... I believe we will advance the state of the art, so to speak, if we refine the very concept of public information and the notion of what kinds of information people need at what time and for what reason. (p. 54)

Lynton Caldwell, Professor of Government, Indiana University --

In assessing the role of public information, one of our primary concerns should be its effect upon public perception of the problem. Perceptions and information must somehow be joined together if public opinion is to be moved. (p. 61)

Dael Wolfle, Publisher, Science, Washington, D.C. --

If people disagree with some of the questions or disagree with some of the answers, there are likely to be lots of volunteer critics, and some of the volunteers may be a nuisance. But unlike a court, you can't neglect hearsay evidence; you have to pay attention to it. By providing Congress with a knowledgeable group that can make sure that questions that are of concern to Congress are asked, and by making sure their answers are given adequate public presentation, you should have a better basis for making the decisions... (p. 135)

But a counterpoint was struck by Harvey Brooks, in his written comments to Rep. Daddario after the seminar. These were included in an appendix to the publication, and offer a unique view of the value and timing of public information.

Harvey Brooks, Dean of Engineering and Applied Physics, Harvard University --

I believe that complete openness at all stages of assessment would completely destroy the integrity of the process. I would agree that the arguments, data, and evidence on which decisions are based should be opened to public scrutiny, and should be subject to review through some sort of public hearing process, in which all viewpoints and interests can be represented, and in which testimony is open to cross-examination and rebuttal. I do not agree that every step in the assessment

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process, including all the tentative hypotheses and opinions later proved to be wrong or incomplete, should be public. (p. 155)

EARLY FRAMEWORKS: THE ACADEMY STUDIES

Two of the four studies dealing with technology assessment requested by the House Science and Astronautics Committee in 1969 discussed the concept of public participation in the TA process. These were the study prepared by the National Academy of Sciences ("Technology: Processes of Assessment and Choice") and the report prepared by the National Academy of Engineering ("A Study of Technology Assessment"). Both studies offered only scattered insights into the authors' concept of public participation in the TA process, but there is enough distinction between the two sets of comments to offer a basis for comparison. It is particularly interesting to note that the themes developed in these early studies were carried throughout the legislative history discussions of public participation. The questions raised in each study are complex and not resolved through simple organizational changes.

The NAS study briefly discussed the need for public participation in its section titled "Constraints upon the Representation of Affected Interests". Since the decision making process as a whole fails to take into consideration all the consequences of the decision maker's choices, the authors write, "adequate" representation of affected interests must be insured. The report states:

The very essence of the panel's concern about the criteria that currently dominate technological choices is a conviction that the present system fails to give all affected parties effective representation in the crucial processes of decision. (p. 41) (italics in original)

Perhaps an idealized system of technology assessment would provide effective representation for every potentially affected interest at every such point. In practice, however, this is impossible... Both to avoid cumbersome delays and to assure the representation of inarticulate interests or diffuse public concerns such as the preservation of future options, it may be necessary to create surrogate representatives -- public intervenors -- to speak on behalf of such interests and values. (p. 66)

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This concept of "surrogate representatives" for the public interest was carried over into some of the hearing testimony before the House Science and Astronautics Committee in later years. The NAS report continues:

These considerations imply that broad public participation in the assessment process ought to be encouraged, and public apathy overcome, in the early stages of major technological developments. (p. 67)

Finally, in the list of "institutional guidelines" offered by the NAS study panel, the authors recommend:

[Such institutions] should remain open to the widest possible range of responsible influence by all potentially interested groups and by surrogate representatives of interests too diffuse or too weak to generate effective spokesmen of their own. (p. 90)

In contrast to the conceptual framework described above, the report prepared by the National Academy of Engineering emphasized the need to insure objective, unbiased assessment studies by teams or task forces of experts. These experts would then seek to represent the public interest by soliciting affected parties' views and through a "neutralization" of their own personal interests. The report includes the following recommendations in its "Summary of Findings":

(3) Members of a technology assessment task force should be chosen for their expertise but not as representatives of affected parties or special interests. The viewpoints of affected parties should be brought to the task force by volunteered or solicited presentations, and with special concern to elicit views from those affected parties who are not normally organized in their own interests.

(4) Task force members will necessarily come from public and private organizations that have knowledge about the subject under assessment. Experience shows that task forces composed of members possessing a wide range of personal interests have been able to focus on the public interests and to neutralize the biases of the organizations with which they are associated. (p. 4)

Neither report offered a special mechanism through which public participation might be channelled, but the insights of both studies into the complexities of representing the public interest are useful and necessary in understanding later debate on this subject.

THE THIRD WAY: ALTERNATIVES TO TECHNOCRACY AND CHAOS --
THE 1969 HEARINGS

In November and December of 1969, the House Subcommittee on Science, Research and Development, under the chairmanship of Rep. Daddario, held a series of hearings on technology assessment. Although there were some witnesses who had participated in the earlier TA seminar, most of the persons testifying before the subcommittee were making their first formal statements on the topic of technology assessment. The published transcript of the hearings also included over 300 pages of written communications, selected articles and papers on technology assessment, as well as the proceedings from a conference sponsored by the Engineering Research Foundation on the same topic. Throughout this printed record there is new evidence of an evolution in the thinking of the participants on the ways in which the public might be involved in the process of technology assessment. Many of the hearing witnesses were representatives of government offices or industrial research centers, and they tended to focus on specific mechanisms, whereas the academic speakers provided more of an overview or philosophy as to why the public should be involved.

Dr. Emmanuel Mesthene, Director of the Program of Technology and Society at Harvard University, touched on the historic reasons for public participation in TA in his comments:

... There is a tendency, in high-population and high-technology societies, for decisionmaking to move increasingly into the public sphere. There are two principal reasons for this. First, as technology leads to increases in productivity, the proportion of national resources needed to feed, clothe, and shelter the population declines and we have increasing amounts of resources to spend as a society, on such things as the environment or public transportation. And such spending decisions can only be made in the public sector. Second the increasing external costs of technological development need to be contained, and decisions about that, too, can be made only in the public sector. The relative scope of public decisionmaking thus grows at the expense of individual decisionmaking. (p. 242)

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Dr. Mesthene's ideas were also quoted by Richard Carpenter, Chairman of the Engineering Foundation Research Conference on Technology Assessment. Mr. Carpenter's paper was inserted as one of the appendices to the hearing, and some of his comments were directed toward the concept of public participation:

But he (Mesthene) declared that making these 'expert decision-makers' accountable to the citizenry posed a major problem. In his view, the rise of the expert analyst and decision-maker places a heavier burden of citizenship on the individual than before; that is, the ordinary citizen must learn more and work harder at his public role -- almost as hard as he does at his private career -- if he is to understand what the technocrats are doing...

'If you go the full way of the technocratic elite you'll wind up with a technocracy. But if you go the way of those who want full participation you'll wind up with chaos.

'The question is how to take advantage of the knowledge necessary to run a big, complex society without giving up the values of participation. The answer we're looking for is a third way. We haven't found it yet.' (p. 368)

Carl Bruch from the Brookings Institution indicated his concern with the issue of public participation in correspondence which was included as an appendix:

The basic concern of technology assessment should be the protection of the public interest. As our society increases in technological complexity, the price of an error in the risk/benefit equation is constantly increasing. Because the future destinies of so many people are affected by any decisions that governmental agencies make in terms of technology assessment, I feel that there has to be more input from the public. Such inputs can come not only from the highly organized interests but also from all those affected by any technological decisions so that our society does have a democratic decision-making process at work in such technological evaluations. (p. 471)

The conclusions of the study by the National Academy of Engineering were echoed in the statement by John R. Pierce, Executive Director from Research-Communication Sciences Division at the Bell Telephone Laboratories:

Assessments must be made by experts; that is, by people who have demonstrated substantial contributions to technology and technologically related areas. (p. 213)

But Dr. Raphael G. Kasper, from George Washington University, offered a different view elsewhere in the published comments:

...Some apparently feel that the 'public interest' can be served without allowing direct participation of citizens, while others feel that public involvement is crucial to the assessment process. We tread on dangerous ground, I think, if we hold that the complexities of modern technology are so great that the public can no longer make rational decisions with respect to the application of technology. On the other hand, providing a mechanism for public participation is no easy task. Beyond the rhetoric of 'providing a public forum' or 'giving the public a voice', very little has been said about how such a role for the public could be fashioned. This is understandable; the problem is quite difficult and no easy answers exist. Perhaps no answers exist at all, but surely this is an area which must be investigated carefully. However, it must be recognized that the time is past when most people will accept without question the opinions of 'experts'. Therefore, the mere establishment of a new group of 'experts' to perform technology assessment is unacceptable. (p. 484)

Dr. Kasper was correct in asserting that "very little has been said about how such a role for the public could be fashioned", but several speakers and writers in the 1969 hearing did attempt to structure some type of mechanism for this purpose. Most notable among the various specific alternatives described were those presented to the subcommittee by Louis Mayo, Harold Green, and Vary Coates, all from The George Washington University, and Laurence H. Tribe in his comments at the Engineering Foundation Conference.

1. The modified public hearing mechanism

In his testimony before the subcommittee, Dr. Louis H. Mayo, Director of the Program of Policy Studies in Science and Technology,

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described the need to involve "affected publics" in the assessment process. He noted that:

Perhaps in a majority of situations those segments of the public affected will have an organizational channel for expressing their views which will come to the attention of the OTA. It is likely, however, and especially with prospective applications, that segments of the public will be affected which are not represented by an organized interest group or such group might not have perceived the implications of the application. Hence, the question arises as to how the OTA is to be assured of data on the full span of actual or probable social consequences. (p. 106)

Dr. Mayo went on to indicate that the "formal" hearing process would tend to discourage inputs by groups not highly organized or who do not realize that they are to be affected by a proposed technical action. As a response to this dilemma, Dr. Mayo suggested that some sort of modified public hearing procedure be considered "which would invite relevant informational inputs during the assessment process." He then turned his attention to the question of how formalized such a procedure should be:

Does this suggest that the OTA should restrict its public hearings to a similar essentially informal procedure and avoid efforts to judicialize the information gathering function? This approach would accommodate a modified adversarial system enabling relevant partisan interests to register their views on the technological application involved. It would avoid most of the inquiries raised (earlier)..., although it would not eliminate the situation (where) ...data (is) needed from a noncooperative private sector entity. (p. 108)

Dr. Mayo offered various examples of modified public hearing mechanisms, including the experiences of the National Transportation Safety Board and the National Commission on Product Safety.

Mrs. Vary Coates, a research scientist also working in the Program of Policy Studies, elaborated on the problems and opportunities of this

informal hearing mechanism in her paper "Examples of Technology Assessments for the Federal Government", which was included as an appendix to the subcommittee hearing document. In her comparison of several selected assessment activities, Mrs. Coates concluded:

Only one of the assessments included inviting or encouraging participation by the public. This was of course the assessment on product safety. The Commission held a number of public hearings in several parts of the country... Consumers were asked to recount their experiences and the hearings received wide publicity, as they were intended to do. The Commission published an interim report on toys and consequently legislation was passed regulating several new aspects of toy safety...

It is also true, however, that this representation-of-interests aspects of technology assessment may in some cases conflict with the kind of detached, scholarly, and 'scientific' consideration of facts which a staff of experts may prefer. This is a potential problem in design for a new assessment mechanism...

In other assessments in our group there was no public participation, but there was public scrutiny of most in the form of published documents, or coverage by news media. Assessments which 'produce no paper' or produce only internal documents may remain hidden from public view; in a political system which depends for action on manipulating, as well as being manipulated by, conflicting interest groups it could not be otherwise. (p. 291-292)

2. The adversarial process -- effective risk representation

Dr. Harold P. Green, from the National Law Center at George Washington University, offered an alternative to the modified hearing mechanism described above, although his ideas were perhaps more complementary than contradictory. Dr. Green's article on the adversary process and technology assessment was included as an appendix to the hearings, and in it he stated the following:

Since the issue is one of benefits to the public versus costs (including risks) to the public, the focus of technology assessment

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should be to arrive at a conclusion as to what costs (including risks) the public is prepared to assume in exchange for what benefits. In our democracy, such decisions cannot appropriately be made by an elite body of specialists and generalists (who are specialists in technology assessment). They should be made by the public itself expressing its views through its elected representatives in the Congress who are accountable to their constituents. This requires that the entire assessment process take place in the open with full articulation in language the public can understand of the benefits and costs (including risks)... Technology assessment is not an appropriate function for experts; rather it is a process which should be performed entirely at the political level. Those who question whether the public and the Congress have the competence to make the necessary sound assessments express a lack of faith in the democratic process to cope with modern and future technology, and if we act on the basis of such lack of faith we have a different ball game. In my view, the basic problem is to compel scientists and technologists to present the issues to the public in the language of ordinary public discourse rather than in the esoteric jargon of their disciplines, and if this is done I have no doubt as to the efficacy of the democratic process... (p. 352-353) (*italics in the original*)

Dr. Green then went on to offer his solution to the dilemma of public participation:

The basic problem of building an assessment institution is, therefore, to provide a means whereby the negative factors, particularly the risks, will be vigorously, effectively and responsibly pressed upon the decisionmakers in a manner which will permit the Congress to make its own judgments and which will permit the public to make its own judgments so that its views will become known to the Congress. In a nutshell, the problem is to give equal time, opportunity, and attention to the negative factors. (p. 353)

The adversarial process was also discussed in terms of interest group participation. Carl W. Bruch of the Brookings Institution, who was quoted earlier in this section, included in his statement a justification for the value of "interest group pluralism":

Increased protection of the public interest from current arrangements between the government and those elements which push for technological change can be achieved now if various organizations are allowed to take on the role of public advocates or societal ombudsmen in the risk/benefit judgments for public protection and welfare...

If one reviews the evolution of political power in the U.S., it is found that government structures as well as politicians respond to those organized interests which have access to the government and to the communications media. The term, interest group pluralism, has been used to describe the determination of the public will through the closed competition between interest groups. If technology assessment takes on the aspect of interest group pluralism and allows these decisions to be made only by the most highly organized interests, then indeed there will be a continuing crisis regarding governmental authority in the protection of the public interest. (p. 471)

3. A new technology assessment mechanism

But involving the public in a hearing or adversary process is not the complete solution, one writer argued. Building on the earlier recognized need to accurately communicate the assessment results to the public, Laurence Tribe proposed a two-fold mechanism as part of his presentation before the Engineering Foundation Research Conference. His comments also included the need for "surrogate public representatives", as first discussed by the NAS study:

Before such policy papers are prepared, and perhaps also before commissioned reports are approved for publication, it is important that public hearings be held if requested by or on behalf of any potentially affected group and that any final report include a summary of such hearings and a statement of the data and arguments on which the report's conclusions are based. There are at least three reasons to open new technology assessment mechanisms to as wide as possible a range of countervailing influences. First, it's the best way to keep them both honest and vital. Second, it's more efficient to let the public participate in the earliest stages of evaluation and planning than to ignore the public at the outset only to invite a political explosion later on, when changes in plans are more costly. And third, openness to public participation is the only way to respond to the widespread (and I believe essentially accurate) belief that current decision-making processes bearing on technological development reflect the interests and views of too narrow a set of constituencies.

Any new technology assessment mechanism must therefore be accompanied by a system of surrogate public representatives or ombudsmen to speak on behalf of interests too weak or diffuse to generate effective spokesmen of their own, in addition to a well defined channel for established interests and groups that demand the right to be heard. (p. 390)

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Two central concepts emerge from Tribe's comments. First, the public must have access to, and if necessary, have "surrogate" (subsidized?) representatives in the hearing process, where options are created, discussed and shaped. Secondly, the report of these hearings, and even the final report of the assessment itself, must provide the public not only with a set of conclusions or recommendations, but also the data on which those findings are based.

Tribe continues in his statement:

I would add two qualifications. First, beyond a certain point, broadening public participation costs more -- both in terms of lost time and in terms of lost clarity -- than it's worth, and mechanisms are needed which can strike an effective balance. Second, at least some stages of the technology assessment process must remain confidential because sensitive data, proprietary information, and speculative views would never be aired in the glare of public scrutiny. So long as the evidence and arguments on which major technological decisions are finally based remain open to public view, there are good reasons to shield preliminary or tentative discussions and studies from similar exposure. (p. 390)

These qualifications reflect the warning issued earlier by Dr. Mesthene, that public participation in technology assessment must reflect a balance between technocracy and the "chaos" of full participation. The counterpoint initiated by Harvey Brooks in 1967 also carries through here, that full disclosure of all information available throughout the assessment process would adversely affect the quality and perhaps even the objectivity of the team participants' responses.

OPENING UP THE POLICY MAKING PROCESS ---
THE 1970 HEARINGS

In May and June 1970, the House Subcommittee on Science, Research, and Development continued their hearings on technology assessment. By this time several bills advocating the creation of an Office of Technology Assessment had been introduced, and the focal point of the 1970 hearings was H.R. 17046, THE LATEST IN THE SERIES. H.R. 17046 included a section providing for the appointment of public members to the Technology Assessment Board (see Appendix B). The comments of various witnesses who testified at these hearings, therefore, were often directed toward this particular legislation rather than offering broad or general philosophic guidelines.

In his statement before the subcommittee, Dr. Edward Wenk, professor of engineering and public affairs at the University of Washington, referred to an earlier bill (H.R. 6698) introduced by Congressman Daddario in the 90th Congress. That bill was not enacted, but Wenk highlighted some of its advantages, mentioning in particular that it provided for the creation of a "12-member advisory council drawn from Government, the scientific community, industry, labor, education, and the general public". Wenk's comments pointed out the fact that this earlier legislation indicated that the "general public" perhaps had interests separate from organized interests or affected parties, and therefore was entitled to equal representation in the deliberations of the council. Wenk also endorsed the hearing process as a means for gathering information about the views of the public, stating that one of the functions of a commission

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To hold hearings -- perhaps through a seminar process... which I believe is worth looking at carefully here as a valuable mechanism, to solicit different points of view, and provide for public participation. (p. 106)

R. The Comptroller of the United States, Elmer B. Staats, also endorsed the participation of the public in the policy-making activities of the proposed Office. In his responses to questions submitted for the hearing record, Mr. Staats pioneered a new concept -- that the public should perhaps have the leadership role in the formation of the Technology Assessment Board H.R. 17046, as introduced, provided that public members should be appointed to the Board, and that the officers of the Board should be selected from among the members. Staats urged that the Director should also be a voting member of the Board, and when questioned as to whether the Chairman should be chosen from among the nongovernment Board members he responded:

In view of the other demands on the time of the Government members of the Board and from a public image standpoint, we believe that election of a Chairman and Vice Chairman by the Board from among the public members is a desirable procedure. (p. 22-23)

Dr. Louis H. Mayo from George Washington University also offered written comments on H.R. 17046 to the subcommittee, and included in these a legal interpretation of the bill's sections dealing with the "representation of affected participants of the general public in the assessment process". Much of his statement is based upon his earlier testimony (in the 1969 hearing) on the use of the modified hearing process as a mechanism for soliciting public views and representing the public interest

in the assessment. Dr. Mayo's comments, therefore, select out those ways in which members of the public can legitimately involve themselves in the activities of the proposed Office.

Presumably any member of the public can invite the attention of the Office to any matter he may wish. But the Office would apparently determine on its own discretion when public hearings on given matters might be justified and what the most suitable hearing format should be. Such hearings would not be subject to the restraints of the Administrative Procedure Act... Presumably, particular hearings would be so structured and conducted as to gain the optimum data input with respect to the assessment task involved. This is a sensible approach, although occasional protests can be expected from certain participants who, for whatever reason, cannot be included in the roster of witnesses. Provision under Sec. 3 (3) for 'freely available' access to or distribution of the reports of the Office should assure a potentially broad participation of affected segments of the public in the assessment activities of the Office. It is to be noted, however, that the proposed bill contains no provision pertaining to the standing of a complainant who may wish to protest the release of an assessment report or other data which, in his judgment, may be unjustifiably injurious to the public interest or to his private interest. (p. 212)

Included in the appended materials to the 1970 hearings was an article by Anthony Wedgwood Benn, Minister of Technology in England. Dr. Benn offered some general guidelines for improving the decision making process overall, describing three separate mechanisms: more comprehensive interrogation, independent assessment by interdisciplinary groups, and public discussion of alternative policy choices. Benn argues for "democratic control" of technological change:

For this whole process that I have been describing has, in fact, a much wider significance than may at first appear. It represents the demand by an ever-growing number of thinking people that the power of technology, whoever exercises it, be brought more effectively into the arena of public affairs and made subject to democratic decision... The choices we make as between the alternatives opened up by technology have got to be exposed to far greater public scrutiny and subjected more completely to public decision, especially by those whose interests are most intimately affected. (p. 231)

He then goes on to describe "two obstacles to be overcome" in building the process of public participation.

The first will be from those who believe that the decisions that have to be made require such specialist and expert knowledge that it would be foolish, dangerous and wrong to allow ordinary people to have a say in them... However superficially persuasive this argument may seem, it is in fact exactly the same argument as was used in the last century -- and in this -- against both universal suffrage and votes for women.

For our policy towards technology is now the stuff of government and that is either to be under democratic control or not. There is no middle course. (p. 232)

The second argument is much more subtle, and Benn is possibly the only writer throughout OTA's legislative history to try to define it. This "obstacle" to public participation "lies in the minds of the people themselves", and is grounded in their belief that they do not have enough information or knowledge to make judgments about technical matters, or -- more importantly -- that "if they tried to do so, their efforts would be doomed to failure, because nobody really cares what they think." Benn describes this concept further:

If we are able to persuade people that they ought to be able to influence decisions and are qualified to do so we still face the much more difficult job of overcoming their suspicion that, even if they were to make the attempt, it would be bound to fail because nobody cares two hoots what they think. (p. 233)

Benn concludes this section of his paper with the comment that "the right to opt out like the right to abstain in an election, is a fundamental right" as well, and that people who genuinely don't want to participate should not be compelled to join in. But he issues the following warning on the necessity of public participation:

If people who want to join in effective discussion and decision making are not able to do so than they either become apathetic or they are driven into a frenzy of protest.

Protest and apathy, apathy and protest, are both evidence of alienation.

No society can be stable unless it provides the machinery for peaceful change and institutions capable of reflecting the desires of ordinary people. (p. 233)

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FINAL RECOMMENDATIONS -- THE SENATE HEARINGS IN 1972

In 1971, the House Committee on Science and Astronautics ordered reported H. R. 10243, which was subsequently debated on the House floor in early 1972, amended and passed. As reported, H. R. 10243 provided for a Technology Assessment Board consisting of 11 members, including four members from the public and the Director as voting members. The Board was charged with the election of its own officers from among the public members. After debate on the House floor, this section was amended, and membership on the Board was reduced to 10 members, all Members of Congress. Thus, as passed by the House, public participation was eliminated from the Board itself.

In March 1972, the Senate Committee on Rules and Administration, Subcommittee on Computer Services, held hearings on the House-passed bill and S. 2302, which resembled the earlier version of H. R. 10243 (that is, S. 2302 provided for an 11-member Board, four of whom were to be appointed from the public). During the Senate hearings, many witnesses urged that public participation be restored to the policy-making body of the Office -- if not through membership on the Board itself, then perhaps through some sort of advisory mechanism. The Senate committee report on this legislation states in its analysis of these hearings:

Virtually all witnesses who testified on the configuration of the Office underscored the need for the Technology Assessment Board to obtain the services of an advisory group composed of public and technical members. (p. 14)

Selected statements indicate that various Members involved in the shaping of the technology assessment legislation endorsed the need for public participation mechanisms in the policy-making process of the Office.

Senator Kennedy:

I think it is desirable that the bill be further amended to permit appropriate public participation in the assessment process. Environment and conservation groups, public service law firms, non-profit research organizations and other citizens' groups should be allowed and encouraged to submit information and ideas to the Office before it completes its assessments. (p. 37)

Representative Davis (Ga.):

With regard to input from the public, our studies convince us that there must be close participation by appropriate segments of the public in the operations of the Board. Not only is this essential from the standpoint of creating an attitude of public trust...but it is also important in view of the fact that few Members of Congress have the variety of background and expertise which will be needed for the formulation of effective policies. (p. 59)

Mr. Daddario:

The Technology Assessment Board is aimed at supplying for the Congress an information producing capability which then must have some public involvement. It must be proven, I believe, to the public at large that it does have an opportunity through this new technology assessment capability to participate early in the development of legislation and in the pursuit of alternative goals of action... I would hope that as you form this legislation here in the Senate, as you come to grips with the conflicts which we always have with legislation, that it will be kept in the forefront that public participation in some important way, through an advisory mechanism perhaps, is necessary. (p. 71)

As reported by the Senate Rules Committee, H.R. 10243 included an Advisory Council with public membership to "provide technical input to the Board by recognized public authorities, thus compensating for the

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removal by amendment on the House floor of public members from the Board as originally conceived." (Senate Rules Committee Report, p. 16). The Senate version of the bill was adopted by the House conferees, and was approved by both Houses in late 1972.

One other section of the technology assessment legislative proposals dealt with the issue of public participation, and this section too went through a metamorphosis during Senate deliberation of the legislation. Sec. 3 (e) in the House version of H.R. 10243 as reported and passed stated that reports and technical information produced by the Office "shall be made freely available to the public" except in those cases exempted under the Freedom of Information Act (see Appendix C). In the Senate version of H.R. 10243, however, this section was amended to provide that assessment reports and other information shall be made available "to the initiating committee or other appropriate committees of the Congress". This amended version provides further that such information "may be made available to the public" except in the same exempted cases. The amended version of this section was retained in the final language of the Technology Assessment Act (see Appendix D).

SOME CONCLUDING QUESTIONS

What does public participation in the technology assessment process really mean? What importance does the preceding analysis have for those who must decide policy or choose guidelines for involving the public in a technology assessment study or in the organizational structure established to assess technology? The various references to public participation taken from OTA's legislative history do not offer a clear direction or simple answer. But they do raise new questions, which may be the key to gaining fresh insights into this complex area.

If the public is to be involved in the activities and studies of the Office of Technology Assessment, as is implied by the statements of various witnesses, such involvement will have to be organized through a series of mechanisms, not necessarily interlocking or "manageable" through one office or one set of regulations. Participation is a dynamic process; it takes place through access to reports and interim materials, as well as through representation on advisory panels and study teams. Participation can also be either self-initiated or responsive, and mechanisms need to be fashioned for both modes. For better understanding, the various questions arising from the legislative history of OTA may be grouped into four categories: access, representation, public information, and public alerting. The first two are based on the assumption of public initiative, or reversely, the need for responsive mechanisms in the Office; the last two focus more on OTA's efforts to solicit public reaction through mechanisms initiated by the Office to generate public participation.

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In the first category, the term "public access" assumes the initiative of groups to "come and get" the information. Public interest groups have developed an advocacy role in environmental and consumer areas, and may be expected to do the same in some technical issues. A trade-off must be made between public access to and confidentiality of interim reports, which may contain hypothetical or incomplete information, or possibly proprietary material. What types of information will public groups seek from the Office? Will they have access to contractors or advisory panels, or to OTA's committee clients? Will some groups (e. g., affected parties) have more access than others?

Secondly, what does "representation" mean in terms of public participation? There are questions about adequate representation (are enough groups represented?) and level of representation (what kinds of decisions can these representatives make?). The appointment of publicly-elected Members of Congress to the Technology Assessment Board is offered as one response to the need for public representation in the policy-making process. The members of the Advisory Council, appointed on the basis of their scientific or technical expertise or contributions made to educational or public activities, are also offered as a more direct "public" representation.

But other statements describe public participation as requiring a still more active and more direct representation of affected interests. This representation could take place through various mechanisms; for example, through a modified hearing procedure or the use of "surrogate" public

representatives. As a final counterpoint, however, some speakers warn that the panel or hearing process is more effectively used or even controlled by representatives of highly organized interests rather than those who represent the diverse views of the public at large.

These questions regarding representation of affected interests lead to a third area, the role of public information, for through such channels the Office may reach those "publics" which are unorganized and perhaps unaware of their common interests. Much is being written today about public apathy towards science, or even public distrust of the scientific expert. The whole process of technology assessment may have had its beginnings in some of these same forces. Yet does this "unaffected", "alienated", or "disinterested" public have a right to participate in the assessment? Are there other mechanisms, other than the procedure of representation, which would encourage their views and their information to be contributed to the assessment product? Does an organization such as the OTA have a responsibility to inform the unaware public of the impacts of technology in their daily lives? If so, how can such a procedure be related to allowing these same groups (made aware) the right to participate in the assessment study? Frustrated expectations, one might assume, would lead to a greater negative response or impact on the activities of the Office, than disinterest or apathy.

Additional questions surrounding the issue of representation include: Are certain groups more represented than others? Are there interests

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or values affected by the technology under study which are not organized enough to participate in the representation process? Does the participation of "representatives of the public interest", who are appointed rather than elected, improve the policy-making process? Or is it better to make the elected representatives more aware of the interests of affected groups who are concerned about a particular technology?

The fourth area which needs to be addressed is the "watchdog" or "alerting" role of the public. Should mechanisms be developed which would give legitimacy to the public groups or individuals who wish to alert the Congress to potential dangers or crisis areas, or perhaps opportunities arising from technology? Can the "anticipatory" role of OTA be enlightened by public involvement, which would perhaps provide fresher and more relevant data than statements sifted through organizational structures? Credibility, of course, would be a key obstacle in this process, for the Office would not wish to burden itself with "doomsdayers" while actively soliciting new insights into the future. The legislative history statements strongly indicate that the hearing process presents obstacles to those individuals, speaking for no group but themselves, who wish to put the Congress on notice to potential dangers. How can the OTA be responsive to such a public? How can the whistle-blowing procedure be constructively integrated into the technology assessment process? Finally, how much should the OTA emphasize this public alerting function in relation to its responses to committee requests?

In summary, public access, public representation, public information, and public alerting are all integrally related to the questions of public participation. And public participation, as noted by the witnesses' statements throughout the legislative history of OTA, is necessary to the democratic decision-making process. If technology assessment is to be something more than expert advice, then new mechanisms and procedures need to be developed to allow the public, and the diverse groups contained within that term, the right and the means to involve themselves in the advisory processes of government. The Technology Assessment Act of 1972 states that:

...It is essential that, to the fullest extent possible, the consequences of technological applications be anticipated, understood, and considered in determination of public policy on existing and emerging national problems. (Italics added)

Public participation is one way of implementing this search for more complete information.

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APPENDIX A: Bibliography of Source Material

U.S. Congress. House. Committee on Science and Astronautics. Subcommittee on Science, Research, and Development. Technology assessment seminar. Proceedings before the Subcommittee. September 21 and 22, 1967. 90th Congress, 1st session. Washington, U.S. Govt. Print. Off., 1967. 184 p.

A revised edition appeared in August 1968.

U.S. Congress. House. Committee on Science and Astronautics. Technology: processes of assessment and choice. Report of the National Academy of Sciences. July 1969. Washington, U.S. Govt. Print. Off., 1969. 136 p.

----- A Study of technology assessment. Report of the Committee on Public Engineering Policy, National Academy of Engineering, July 1969. Washington, U.S. Govt. Print. Off., 1969. 208 p.

----- Subcommittee on Science, Research, and Development. Technology assessment. Hearings, 91st Congress, 1st session. November 18, 24, and December 2, 3, 4, 8, and 12, 1969. Washington, U.S. Govt. Print. Off., 1970. 501 p.

----- Technology assessment -- 1970. Hearings, 91st Congress, 2nd session, on H.R. 17046. May 20, 21, 26, 27 and June 2, 3, 1970. Washington, U.S. Govt. Print. Off., 1970. 337 p.

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U.S. Congress. Senate. Committee on Rules and Administration.
Subcommittee on Computer Services. Office of Technology Assessment
for the Congress. Hearings, 92nd Congress, 2nd session, on
S. 2303 and H.R. 10243. March 2, 1972. Washington, U.S. Govt.
Print. Off., 1972. 120 p.

APPENDIX B---CHART OF OTA BILLS

H. R. 6698 (introduced in 1967)

Sec. 4(a) The Board shall consist of five members to be appointed by the President, by and with the advice and consent of the Senate. The members of the Board shall be selected solely on the basis of their qualifications to perform the functions of the Board as evidenced by established records of distinguished service...

(c) The President shall from time to time designate one of the members of the Board to serve as its Chairman.

H. R. 17046 (introduced in 1970)

Sec. 4(a) The Board shall consist of thirteen members as follows:

(1) two Members of the Senate who shall not be members of the same political party, to be appointed by the President of the Senate;

(2) two Members of the House of Representatives who shall not be members of the same political party, to be appointed by the Speaker of the House of Representatives;

(3) the Comptroller General of the United States;

(4) the Director of the Legislative Reference Service of the Library of Congress; and

(5) seven members from the public, appointed by the President, by and with the advice and consent of the Senate, who shall be persons eminent in one or more fields of science or engineering or experienced in the administration of technological activities, or who may be judged qualified on the basis of contributions made to educational or public affairs...

(c) The Board, by majority vote, shall elect from among its members appointed under subsection (a) (5) a Chairman and a Vice Chairman, who shall serve for such time and under such conditions as the Board may prescribe...

H. R. 18469 (introduced in 1970) and H. R. 3269 (introduced in 1971)

Sec. 4 (a) The Board shall consist of thirteen members as follows

(1) two members of the Senate who shall not be members of the same political party, to be appointed by the President of the Senate;

(2) two Members of the House of Representatives who shall not be members of the same political party, to be appointed by the Speaker of the House of Representatives;

(3) the Comptroller General of the United States;

(4) the Director of the Legislative Reference Service of the Library of Congress; and

(5) six members of the public, appointed by the President, by and with the advice and consent of the Senate, who shall be persons eminent in one or more fields of science or engineering or experienced in the administration of technological activities, or who may be judged qualified on the basis of contributions made to educational or public activities.

(6) the Director (except that he shall not be considered a voting member for purposes of appointment or removal...)

(b) The Board, by majority vote, shall elect from among its members appointed under subsection (a) (5) a Chairman and a Vice Chairman, who shall serve for such time and under such conditions as the Board may prescribe...

APPENDIX B - ii

S. 2302 (introduced July 1971)

Sec. 4 (a) The Board shall consist of eleven members as follows:

(1) two Members of the Senate who shall not be members of the same political party, to be appointed by the President pro tempore of the Senate;

(2) two Members of the House of Representatives who shall not be members of the same political party, to be appointed by the Speaker of the House of Representatives;

(3) the Comptroller General of the United States;

(4) the Director of the Congressional Research Service of the Library of Congress;

(5) four members from the public, appointed by the President, by and with the advice and consent of the Senate, who shall be persons eminent in one or more fields of science or engineering or experienced in the administration of technological activities, or who may be judged qualified on the basis of contributions made to educational or public activities; and

(6) the Director (except that he shall not be considered a voting member for purposes of appointments or removal...)

(b) The Board, by majority vote, shall elect from among its members appointed under subsection (a) (5) a Chairman and a Vice Chairman...

H. R. 10243 (as reported, August, 1971)

Sec. 4(a) The Board shall consist of eleven members as follows:

(1) two Members of the Senate who shall not be members of the same political party, to be appointed by the President pro tempore of the Senate;

(2) two Members of the House of Representatives who shall not be members of the same political party, who shall be appointed by the Speaker of the House of Representatives;

(3) the Comptroller General of the United States;

(4) the Director of the Congressional Research Service of the Library of Congress;

(5) four members from the public, appointed by the President, by and with the advice and consent of the Senate, who shall be persons eminent in one or more fields of science or engineering or experienced in the administration of technological activities, or who may be judged qualified on the basis of contributions made to educational or public activities;

(6) the Director (except that he shall not be considered a voting member for purposes of appointment or removal)...

(b) The Board, by majority vote, shall elect from among its members appointed under subsection (a) (5) a Chairman and a Vice Chairman, who shall serve for such time and under such conditions as the Board may prescribe...

H. R. 10243 (as passed by the House, February 1972)

Sec. 4 (a) The Board shall consist of ten members as follows:

(1) five Members of the Senate, appointed by the President pro tempore of the Senate, three from the majority party and two from the minority party; and

(2) five Members of the House of Representatives appointed by the Speaker of the House of Representatives, three from the majority party and two from the minority party.

(d) The Board shall select a chairman and a vice chairman from among its members at the beginning of each Congress...

H. R. 10243 (as reported and passed in the Senate, September 1972)

Sec. 4 (a) The Board shall consist of thirteen members as follows:

(1) six Members of the Senate, appointed by the President pro tempore of the Senate, three from the majority party and three from the minority party;

(2) six Members of the House of Representatives, appointed by the Speaker of the House of Representatives, three from the majority party and three from the minority party; and

(3) the Director, who shall not be a voting member...

(c) The Board shall select a chairman and a vice chairman from among its members at the beginning of each Congress...

P. L. 92-484 (signed October 1972)

- same as H. R. 10243 above, as passed in the Senate.

APPENDIX C

H. R. 10243 (as passed by the House in February, 1972)

Sec. 3 (e) Information, surveys, studies, reports, and findings produced by the Office shall be made freely available to the public except where (1) to do so would violate security statutes, or (2) the information or other matter involved could be withheld from the public, notwithstanding subsection of 552 of title 5, United States Code, under one or more of the numbered paragraphs in subsection (b) of such section. [The Freedom of Information Act]

H. R. 10243 (as passed by the Senate in September, 1972) Identical to the same section in P. L. 92-484.

Sec. 3(e) Assessments made by the Office, including information, surveys, studies, reports, and findings related thereto, shall be made available to the initiating committee or other appropriate committees of the Congress. In addition, any such information, surveys, studies, reports, and findings produced by the Office may be made available to the public except where --

- (1) to do so would violate security statutes; or
- (2) the Board considers it necessary or advisable to withhold such information in accordance with one or more of the numbered paragraphs in section 552 (b) of title 5, United States Code. [The Freedom of Information Act]

APPENDIX D

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TECHNOLOGY ASSESSMENT ACT OF 1972

Public Law 92-484
92nd Congress, H. R. 10243
October 13, 1972

An Act

86 STAT. 797

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To establish an Office of Technology Assessment for the Congress as an aid in the identification and consideration of existing and probable impacts of technological application; to amend the National Science Foundation Act of 1950; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Technology Assessment Act of 1972".

Technology Assessment Act of 1972.

FINDINGS AND DECLARATION OF PURPOSE

SEC. 2. The Congress hereby finds and declares that:

(a) As technology continues to change and expand rapidly, its applications are—

- (1) large and growing in scale; and
(2) increasingly extensive, pervasive, and critical in their impact, beneficial and adverse, on the natural and social environment.

(b) Therefore, it is essential that, to the fullest extent possible, the consequences of technological applications be anticipated, understood, and considered in determination of public policy on existing and emerging national problems.

(c) The Congress further finds that:

- (1) the Federal agencies presently responsible directly to the Congress are not designed to provide the legislative branch with adequate and timely information, independently developed, relating to the potential impact of technological applications, and
(2) the present mechanisms of the Congress do not and are not designed to provide the legislative branch with such information.

(d) Accordingly, it is necessary for the Congress to—

- (1) equip itself with new and effective means for securing competent, unbiased information concerning the physical, biological, economic, social, and political effects of such applications; and
(2) utilize this information, whenever appropriate, as one factor in the legislative assessment of matters pending before the Congress, particularly in those instances where the Federal Government may be called upon to consider support for, or management or regulation of, technological applications.

ESTABLISHMENT OF THE OFFICE OF TECHNOLOGY ASSESSMENT

SEC. 3. (a) In accordance with the findings and declaration of purpose in section 2, there is hereby created the Office of Technology Assessment (hereinafter referred to as the "Office") which shall be within and responsible to the legislative branch of the Government.

(b) The Office shall consist of a Technology Assessment Board (hereinafter referred to as the "Board") which shall formulate and promulgate the policies of the Office, and a Director who shall carry out such policies and administer the operations of the Office.

(c) The basic function of the Office shall be to provide early indications of the probable beneficial and adverse impacts of the applications of technology and to develop other coordinate information which may assist the Congress. In carrying out such function, the Office shall:

- (1) identify existing or probable impacts of technology or technological programs;

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- (2) where possible, ascertain cause-and-effect relationships;
- (3) identify alternative technological methods of implementing specific programs;
- (4) identify alternative programs for achieving requisite goals;
- (5) make estimates and comparisons of the impacts of alternative methods and programs;
- (6) present findings of completed analyses to the appropriate legislative authorities;
- (7) identify areas where additional research or data collection is required to provide adequate support for the assessments and estimates described in paragraph (1) through (5) of this subsection; and
- (8) undertake such additional associated activities as the appropriate authorities specified under subsection (d) may direct.

(d) Assessments undertaken by the Office may be initiated upon the request of:

- (1) the chairman of any standing, special, or select committee of either House of the Congress, or of any joint committee of the Congress, acting for himself or at the request of the ranking minority member or a majority of the committee members;
- (2) the Board; or
- (3) the Director, in consultation with the Board.

Information,
availability.

(e) Assessments made by the Office, including information, surveys, studies, reports, and findings related thereto, shall be made available to the initiating committee or other appropriate committees of the Congress. In addition, any such information, surveys, studies, reports, and findings produced by the Office may be made available to the public except where—

- (1) to do so would violate security statutes; or
- (2) the Board considers it necessary or advisable to withhold such information in accordance with one or more of the numbered paragraphs in section 552(b) of title 5, United States Code.

81 Stat. 54.

TECHNOLOGY ASSESSMENT BOARD

Membership.

SEC. 4. (a) The Board shall consist of thirteen members as follows:

- (1) six Members of the Senate, appointed by the President pro tempore of the Senate, three from the majority party and three from the minority party;
- (2) six Members of the House of Representatives appointed by the Speaker of the House of Representatives, three from the majority party and three from the minority party; and
- (3) the Director, who shall not be a voting member.

Vacancies.

(b) Vacancies in the membership of the Board shall not affect the power of the remaining members to execute the functions of the Board and shall be filled in the same manner as in the case of the original appointment.

Chairman and
vice chairman.

(c) The Board shall select a chairman and a vice chairman from among its members at the beginning of each Congress. The vice chairman shall act in the place and stead of the chairman in the absence of the chairman. The chairmanship and the vice chairmanship shall alternate between the Senate and the House of Representatives with each Congress. The chairman during each even-numbered Congress shall be selected by the Members of the House of Representatives on the Board from among their number. The vice chairman during each

October 13, 1972

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Pub. Law 92-484

86 STAT. 799

Congress shall be chosen in the same manner from that House of Congress other than the House of Congress of which the chairman is a Member.

(d) The Board is authorized to sit and act at such places and times during the sessions, recesses, and adjourned periods of Congress, and upon a vote of a majority of its members, to require by subpoena or otherwise the attendance of such witnesses and the production of such books, papers, and documents, to administer such oaths and affirmations, to take such testimony, to procure such printing and binding, and to make such expenditures, as it deems advisable. The Board may make such rules respecting its organization and procedures as it deems necessary, except that no recommendation shall be reported from the Board unless a majority of the Board assent. Subpenas may be issued over the signature of the chairman of the Board or of any voting member designated by him or by the Board, and may be served by such person or persons as may be designated by such chairman or member. The chairman of the Board or any voting member thereof may administer oaths or affirmations to witnesses.

Meetings.

Subpena.

DIRECTOR AND DEPUTY DIRECTOR

SEC. 5. (a) The Director of the Office of Technology Assessment shall be appointed by the Board and shall serve for a term of six years unless sooner removed by the Board. He shall receive basic pay at the rate provided for level III of the Executive Schedule under section 5314 of title 5, United States Code.

Appointment.

Compensation.

83 Stat. 863.

(b) In addition to the powers and duties vested in him by this Act, the Director shall exercise such powers and duties as may be delegated to him by the Board.

(c) The Director may appoint with the approval of the Board, a Deputy Director who shall perform such functions as the Director may prescribe and who shall be Acting Director during the absence or incapacity of the Director or in the event of a vacancy in the office of Director. The Deputy Director shall receive basic pay at the rate provided for level IV of the Executive Schedule under section 5315 of title 5, United States Code.

(d) Neither the Director nor the Deputy Director shall engage in any other business, vocation, or employment than that of serving as such Director or Deputy Director, as the case may be; nor shall the Director or Deputy Director, except with the approval of the Board, hold any office in, or act in any capacity for, any organization, agency, or institution with which the Office makes any contract or other arrangement under this Act.

Employment restriction.

AUTHORITY OF THE OFFICE .

SEC. 6. (a) The Office shall have the authority, within the limits of available appropriations, to do all things necessary to carry out the provisions of this Act, including, but without being limited to, the authority to—

(1) make full use of competent personnel and organizations outside the Office, public or private, and form special ad hoc task forces or make other arrangements when appropriate;

(2) enter into contracts or other arrangements as may be necessary for the conduct of the work of the Office with any agency or instrumentality of the United States, with any State, territory,

Contracts.

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or possession or any political subdivision thereof, or with any person, firm, association, corporation, or educational institution, with or without reimbursement, without performance or other bonds, and without regard to section 3709 of the Revised Statutes (41 U.S.C. 5):

(3) make advance, progress, and other payments which relate to technology assessment without regard to the provisions of section 3648 of the Revised Statutes (31 U.S.C. 529);

(4) accept and utilize the services of voluntary and uncompensated personnel necessary for the conduct of the work of the Office and provide transportation and subsistence as authorized by section 5703 of title 5, United States Code, for persons serving without compensation;

80 Stat. 499;
83 Stat. 190.

(5) acquire by purchase, lease, loan, or gift, and hold and dispose of by sale, lease, or loan, real and personal property of all kinds necessary for or resulting from the exercise of authority granted by this Act; and

(6) prescribe such rules and regulations as it deems necessary governing the operation and organization of the Office.

Recordkeeping.

(b) Contractors and other parties entering into contracts and other arrangements under this section which involve costs to the Government shall maintain such books and related records as will facilitate an effective audit in such detail and in such manner as shall be prescribed by the Office, and such books and records (and related documents and papers) shall be available to the Office and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination.

(c) The Office, in carrying out the provisions of this Act, shall not, itself, operate any laboratories, pilot plants, or test facilities.

Agency cooperation.

(d) The Office is authorized to secure directly from any executive department or agency information, suggestions, estimates, statistics, and technical assistance for the purpose of carrying out its functions under this Act. Each such executive department or agency shall furnish the information, suggestions, estimates, statistics, and technical assistance directly to the Office upon its request.

Personnel detail.

(e) On request of the Office, the head of any executive department or agency may detail, with or without reimbursement, any of its personnel to assist the Office in carrying out its functions under this Act.

(f) The Director shall, in accordance with such policies as the Board shall prescribe, appoint and fix the compensation of such personnel as may be necessary to carry out the provisions of this Act.

ESTABLISHMENT OF THE TECHNOLOGY ASSESSMENT ADVISORY COUNCIL

Membership.

SEC. 7. (a) The Office shall establish a Technology Assessment Advisory Council (hereinafter referred to as the "Council"). The Council shall be composed of the following twelve members:

(1) ten members from the public, to be appointed by the Board, who shall be persons eminent in one or more fields of the physical, biological, or social sciences or engineering or experienced in the administration of technological activities, or who may be judged qualified on the basis of contributions made to educational or public activities;

(2) the Comptroller General; and

(3) the Director of the Congressional Research Service of the Library of Congress.

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(b) The Council, upon request by the Board, shall—

Duties.

(1) review and make recommendations to the Board on activities undertaken by the Office or on the initiation thereof in accordance with section 3(d);

(2) review and make recommendations to the Board on the findings of any assessment made by or for the Office; and

(3) undertake such additional related tasks as the Board may direct.

(c) The Council, by majority vote, shall elect from its members appointed under subsection (a)(1) of this section a Chairman and a Vice Chairman, who shall serve for such time and under such conditions as the Council may prescribe. In the absence of the Chairman, or in the event of his incapacity, the Vice Chairman shall act as Chairman.

Chairman and Vice Chairman.

(d) The term of office of each member of the Council appointed under subsection (a)(1) shall be four years except that any such member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term. No person shall be appointed a member of the Council under subsection (a)(1) more than twice. Terms of the members appointed under subsection (a)(1) shall be staggered so as to establish a rotating membership according to such method as the Board may devise.

Term of office.

(e)(1) The members of the Council other than those appointed under subsection (a)(1) shall receive no pay for their services as members of the Council, but shall be allowed necessary travel expenses (or, in the alternative, mileage for use of privately owned vehicles and a per diem in lieu of subsistence at not to exceed the rate prescribed in sections 5702 and 5704 of title 5, United States Code), and other necessary expenses incurred by them in the performance of duties vested in the Council, without regard to the provisions of subchapter 1 of chapter 57 and section 5731 of title 5, United States Code, and regulations promulgated thereunder.

Travel expenses.

80 Stat. 498;
83 Stat. 190.
5 USC 5701.

(2) The members of the Council appointed under subsection (a)(1) shall receive compensation for each day engaged in the actual performance of duties vested in the Council at rates of pay not in excess of the daily equivalent of the highest rate of basic pay set forth in the General Schedule of section 5332(a) of title 5, United States Code, and in addition shall be reimbursed for travel, subsistence, and other necessary expenses in the manner provided for other members of the Council under paragraph (1) of this subsection.

Compensation.

UTILIZATION OF THE LIBRARY OF CONGRESS

SEC. 8. (a) To carry out the objectives of this Act, the Librarian of Congress is authorized to make available to the Office such services and assistance of the Congressional Research Service as may be appropriate and feasible.

(b) Such services and assistance made available to the Office shall include, but not be limited to, all of the services and assistance which the Congressional Research Service is otherwise authorized to provide to the Congress.

(c) Nothing in this section shall alter or modify any services or responsibilities, other than those performed for the Office, which the Congressional Research Service under law performs for or on behalf

of the Congress. The Librarian is, however, authorized to establish within the Congressional Research Service such additional divisions, groups, or other organizational entities as may be necessary to carry out the purpose of this Act.

(d) Services and assistance made available to the Office by the Congressional Research Service in accordance with this section may be provided with or without reimbursement from funds of the Office, as agreed upon by the Board and the Librarian of Congress.

UTILIZATION OF THE GENERAL ACCOUNTING OFFICE

Sec. 9. (a) Financial and administrative services (including those related to budgeting, accounting, financial reporting, personnel, and procurement) and such other services as may be appropriate shall be provided the Office by the General Accounting Office.

(b) Such services and assistance to the Office shall include, but not be limited to, all of the services and assistance which the General Accounting Office is otherwise authorized to provide to the Congress.

(c) Nothing in this section shall alter or modify any services or responsibilities, other than those performed for the Office, which the General Accounting Office under law performs for or on behalf of the Congress.

(d) Services and assistance made available to the Office by the General Accounting Office in accordance with this section may be provided with or without reimbursement from funds of the Office, as agreed upon by the Board and the Comptroller General.

COORDINATION WITH THE NATIONAL SCIENCE FOUNDATION

Sec. 10. (a) The Office shall maintain a continuing liaison with the National Science Foundation with respect to—

(1) grants and contracts formulated or activated by the Foundation which are for purposes of technology assessment; and

(2) the promotion of coordination in areas of technology assessment, and the avoidance of unnecessary duplication or overlapping of research activities in the development of technology assessment techniques and programs.

(b) Section 3(b) of the National Science Foundation Act of 1950, as amended (42 U.S.C. 1862(b)), is amended to read as follows:

"(b) The Foundation is authorized to initiate and support specific scientific activities in connection with matters relating to international cooperation, national security, and the effects of scientific applications upon society by making contracts or other arrangements (including grants, loans, and other forms of assistance) for the conduct of such activities. When initiated or supported pursuant to requests made by any other Federal department or agency, including the Office of Technology Assessment, such activities shall be financed whenever feasible from funds transferred to the Foundation by the requesting official as provided in section 14(g), and any such activities shall be unclassified and shall be identified by the Foundation as being undertaken at the request of the appropriate official."

Scientific
programs,
financing.
92 Stat. 360.

64 Stat. 156;
92 Stat. 365.
42 USC 1873.

ANNUAL REPORT

Sec. 11. The Office shall submit to the Congress an annual report which shall include, but not be limited to, an evaluation of technology assessment techniques and identification, insofar as may be feasible, of technological areas and programs requiring future analysis. Such report shall be submitted not later than March 15 of each year.

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APPROPRIATIONS

Sec. 12. (a) To enable the Office to carry out its powers and duties, there is hereby authorized to be appropriated to the Office, out of any money in the Treasury not otherwise appropriated, not to exceed \$5,000,000 in the aggregate for the two fiscal years ending June 30, 1973, and June 30, 1974, and thereafter such sums as may be necessary.

(b) Appropriations made pursuant to the authority provided in subsection (a) shall remain available for obligation, for expenditure, or for obligation and expenditure for such period or periods as may be specified in the Act making such appropriations.

Approved October 13, 1972.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 92-469 (Comm. on Science and Astronautics) and
No. 92-1436 (Comm. of Conference).
SENATE REPORT No. 92-1123 (Comm. on Rules and Administration).
CONGRESSIONAL RECORD, Vol. 118 (1972):
Feb. 8, considered and passed House.
Sept. 14, considered and passed Senate, amended.
Sept. 22, Senate agreed to conference report.
Oct. 4, House agreed to conference report.