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ABSTRACT

This annotated bibliography provides a selective listing of 69 U.S. government publications concerning the relationships of scientific/technological advancement and environmental quality. Major areas covered include science policy, technological assessment, national growth, public policy, econcmics, materials policy, and environmental quality. Information for each entry includes title of the publication, source, date, and number of pages. Items listed were issued from 1971 through mid-1973. (RH)

SCIENCE POLICY, TECHNOLOGY ASSESSMENT, AND THE ENVIRONMENT

AN ANNOTATED BIBLIOGRAPHY

OF SELECTED U.S. GOVERNMENT PUBLICATIONS

CONCERNING THE RELATIONSHIPS OF

SCIENTIFIC/TECHNOLOGICAL ADVANCEMENT

AND ENVIRONMENTAL QUALITY

ENVIRO/INFO

GREEN BAY, WISCONSIN

AUGUST 1973

INTRODUCTION

As increasingly serious concern about environmental quality emerges on both national and international levels, so too has the sophistication of analyzing environmental problems risen in order to produce viable solutions, whether they be short- or long-term. In an obscure document reposes the highly perceptive hypothesis that

> one of the more noticeable results of the application of new technologies has been alteration of the environment. Thus the currently popular notion of technology assessment is quite closely related to the examination of what some have called the "environmental crisis." (see item 58, p.15).

It is toward a heightened awareness of such a relationship that this bibliography is directed.

Assembled here are annotated citations for 69 current (1971 through mid-1973) U.S. documents dealing with science policy, technology assessment, national growth, public policy, economics, materials policy, and environmental quality. Nearly half (32) of these titles were generated by Congress, and of these, half (16) from the House Committee on Science and Astronautics, which has been particularly active in this area.

OF SPECIAL INTEREST ARE ITEMS 19, 24, 30, 36, 42, AND 58.

This is intended to be a current awareness bibliography, but attention should be drawn to the bibliographies found in items 9, 22, 30, 34, 36, 42, 51, 53, 56, 65, and 66, which may be used to complement this list. The definitive bibliography in this field is the truly monumental work edited by Lynton K. Caldwell of Indiana University, entitled SCIENCE, TECHNOLOGY, AND PUBLIC POLICY: AN ANNOTATED BIBLIOGRAPHY. Prepared for the National Science Foundation, this is a three-volume survey of the literature, with volume I (1968) and volume II (1969) covering the period 1945-1967, and volume III (1972) covering 1968-1970. The latter lists some 3500 items.

Also included here are federal contract reports available from the National Technical Information Service (NTIS), Springfield, Va. 22151 (items 53-64), and from the Rand Corp., Publications Dept., 1700 Main St., Santa Monica, Cal. 90406 (items 65-69). Those titles listed as depository items may be found in federal depository libraries. For items 1-52, priced items may be ordered from the Superintendent of Documents, Wash., D.C. 20402, while unpriced items must be requested directly from the issuing agency. Senate documents orders go to the issuing committee, U.S. Capitol, Wash., D.C. 20510, and House documents orders follow suit, only to zip code 20515.

1. National Science Foundation.
AN ANALYSIS OF FEDERAL R & D FUNDING BY FUNCTION. 1972. 83p.
Sudocs no. NS 1.22:F96/963-73. (depository item). $2.50.
"Reviews Federal R & D expenditures over the 1963-73 period by major objectives as defined by budget functions. These R & D expenditures are then compared to total Federal outlays for these various objectives. Analyses of these data and trends provide some insight into changing national priorities." Notes that "in 1972 Federal agencies are the source of an estimated 54 percent of all R & D support in the United States, followed by industry with 40 percent of the total."

2. National Science Foundation.
ANNUAL REPORT. 1951- .
Most recent: 22d, 1972. 1973. 102p.
Sudocs no. NS 1.1:972. (depository item). $2.50. (Also available as House Document 93-58).
Comprehensive discussion of scientific programs in the U.S. Covers research project support activities, national and international programs, research applications, science education, and institutional programs. Appendices include NSF organization, financial report, resultant patents, NSF publications list, and National Research Centers contractors.

3. National Science Foundation.
FEDERAL FUNDS FOR ACADEMIC SCIENCE. annual.
Most recent: Fiscal year 1970. 1972. 62p.
Sudocs no. NS 1.2:Ac 1/5/970. (depository item). 70¢.
"Presents statistical analyses of Federal obligations awarded to universities and colleges for academic science activities. Funding patterns are examined in terms of specific types of science activities, fields of science, agency sources of support, and geographic and institutional distribution of funds." Appendix B. statistical tables pp.34-62.

4. National Science Foundation.
FEDERAL FUNDS FOR RESEARCH, DEVELOPMENT, AND OTHER SCIENTIFIC ACTIVITIES. annual. 1952- .
Most recent: vol.20, 1970-72. 1972. 242p
Sudocs no. NS 1.18:20. (depository item). $2.00.
Provides data for the analysis and study of the various elements that make up the whole structure of science, as well as comprehensive statistical information on the size and scope of federal obligations for scientific activities and the types of institutions and purposes to which such funds are directed. Covers three fiscal years. Three major parts are on federal funds for (1) research, development, and R & D plant, (2) scientific and technical information, and (3) collection of general-purpose scientific data.

5. National Science Foundation.
GUIDE TO PROGRAMS. annual.
Most recent: Fiscal year 1973. 1973. 85p.
Sudocs no. NS 1.20:P94/973. (depository item). $1.50.
Provides "summary information about support programs of the National Science Foundation." Reflects the type of scientific research receiving government sponsorship. Of special interest are the international cooperative scientific activities listed.

6. National Science Foundation.
RESEARCH AND DEVELOPMENT IN INDUSTRY. annual. 1957- .
Most recent: 16th, 1970. 1972. 110p.
Sudocs no. NS 1.22:In2/970. (depository item). $1.00.
Survey of industry, which carries out about 70% of the national R & D effort and employs over two-thirds of the nations's scientists and engineers, in order to develop current and trend information on their R & D activities. Includes discussions on employment, funding patterns, research programs, etc., plus copious statistical tables (pp.31-101).

7. National Science Foundation.
SCIENCE, TECHNOLOGY, AND INNOVATION. Columbus, Ohio, Battelle Columbus Laboratories, 1973. 33p.
Documents "the significant events in several technological innovations of high social impact. These cases . . . illustrate the diverse ways by which research and development activities support each other in the innovation process. . . . Also investigates the role of certain socioeconomic and managerial factors in promoting each of the innovations; and this part of the investigation constitutes a unique contribution to the study of the innovation process. The findings . . . should prove useful to those interested in the stimulation of technological innovation."

8. National Science Foundation. National Science Board.
THE ROLE OF ENGINEERS AND SCIENTISTS IN A NATIONAL POLICY FOR TECHNOLOGY; REPORT. 1972. 48p.
Sudocs no. NS 1.28:72-1. (depository item). 45¢.
The fourth annual report of the National Science Board, exploring one of the most important questions of our time: how science and engineering, through technology, may be brought to bear more effectively on societal problems. The report reflects the conviction that changes in emphasis in the requirements for technology, and changes in the pattern of demands for technological talent, provide a strong basis for major federal initiatives.

9. U.S. Atomic Energy Commission.
SCIENCE AND SOCIETY; A BIBLIOGRAPHY. 1971. 21p.
Sudocs no. Y3.At7:22/WASH-1182. (depository item). 35¢.
A total of 410 references to all types of literature on the role of science in our complex society, published during 1968 through March 1971. References arranged by senior author. Author index.

10. U.S. Citizens" Advisory Committee on Environmental Quality.
ANNUAL REPORT TO THE PRESIDENT AND TO THE COUNCIL ON ENVIRONMENTAL QUALITY. 1971- .
1971. 56p. Sudocs no. Pr 37.8:En8/C49/971. (depository item). 65¢.
1972. 64p. " " /972. " $2.00.
Report of the committee appointed by the President and advisory to the Council on Environmental Quality and to the President. Includes policy recommendations.

11. U.S. Congress. 92d. House.
SCIENCE AND TECHNOLOGY; MESSAGE FROM THE PRESIDENT OF THE UNITED STATES. 1972. 11p.
House Document 92-193. (depository item).
Calls upon the Congress for "a strong new effort to marshall science and technology in the work of strengthening our economy and improving our quality of life," and outlines "ways in which the Federal Government can work as a more effective partner in this great task."

12. U.S. Congress. 92d. House. Comm. on Foreign Affairs. Subcomm. on National Security Policy and Scientific Developments.
SCIENCE, TECHNOLOGY, AND AMERICAN DIPLOMACY; BEYOND MALTHUS: THE FOOD/PEOPLE EQUATION. 1971. 96p. (Committee print).
"This study explores the interaction of science, technology, and American diplomacy in the extraordinarily complex problem of the changing balance between food and population in the less developed countries (LDCs) of the world. It shows how foreign affairs institutions of the United States Government have responded to the challenges of this program. Analysis of this particular issue, it was assumed at the outset, would furnish clues to a better understanding of problems involved in the interplay of science, technology, and diplomacy in general."

13. U.S. Congress. 92d. House. Comm. on Foreign Affairs. Subcomm. on National Security Policy and Scientific Developments. SCIENCE, TECHNOLOGY, AND AMERICAN DIPLOMACY; EXPLOITING THE RESOURCES OF THE SEABED. 1971. 152p. (Committee print). Sudocs no. Y4.F76/1:Sci2/4.

"The purpose of this study is to describe the seabed, its configuration and resources, and to show how technological advances to exploit the resources under the oceans have impacted on national policy and international diplomacy." Includes discussions on geographic, legal, technological, economic, and political aspects of the seabed issue. Appendixes, pp.87-152, reprint texts of relevant laws and treaties.

14. U.S. Congress. 93d. House. Comm. on Merchant Marine and Fisheries. Subcomm. on Fisheries and Wildlife Conservation and the Environment. GROWTH AND ITS IMPLICATIONS FOR THE FUTURE; HEARING WITH APPENDIX . . . ON THE EFFECTS NATIONAL GROWTH WILL HAVE ON RESOURCES, THE ENVIRONMENT, AND FOOD SUPPLY IN THE FUTURE. Part 1. 1973. 996p. Sudocs no. Y4.M53:93-7. (depository item). $4.50.

Includes statements of seven witnesses plus extensive appendix reprinting 31 articles and documents germane to the topic, such as the Club of Rome's study "The Limits to Growth" and the Ward/Dubos monograph "Only One Earth."

15. U.S. Congress. 92d. House. Comm. on Science and Astronautics. ESTABLISHING THE OFFICE OF TECHNOLOGY ASSESSMENT AND AMENDING THE NATIONAL SCIENCE FOUNDATION ACT OF 1950. 1971. 27p. House Report 92-469. (depository item).

Supports H.R. 10243, establishing OTA for the Congress as "an aid in the identification and consideration of existing and probable impacts of technological application" and to "assist the Congress in determining the relative priorities of programs before it."

16. U.S. Congress. 92d. House. Comm. on Science and Astronautics. FOURTH ANNUAL REPORT OF THE NATIONAL SCIENCE BOARD; HEARING. 1972. 115p. Sudocs no. Y4.Sci2:92-2/21. (depository item).

Presentation of the report to the Committee. Reprints text of the Board's report, entitled "The Role of Engineers and Scientists in a National Policy for Technology," pp.61-115. This report "reflects the conviction also that changes in emphasis in the requirements for technology, and changes in the pattern of demands for technological talent, provide a strong basis for major Federal initiatives." See also item 8, this bibliography.

17. U.S. Congress. 92d. House. Comm. on Science and Astronautics.
INDUSTRIAL MATERIALS: TECHNOLOGICAL PROBLEMS AND ISSUES FOR CONGRESS. 1972. 24p. (Committee print).
Sudocs no. Y4.Sci2:92-2/AA.
Examines the relationship of materials management, economics, and environmental affairs, with regard to national research and development policy in science and technology. A brief review.

18. U.S. Congress. 92d. House. Comm. on Science and Astronautics.
INTERNATIONAL SCIENCE POLICY; PANEL ON SCIENCE AND TECHNOLOGY, TWELFTH MEETING. PROCEEDINGS. 1971. 373p.
Sudocs no. Y4.Sci2:92-1/1. (depository item).
"International science policy, viewed as a summation of national policies, international agreements, and voluntary associations between groups of scientists and engineers, plays an increasingly important role in our technological society. These sessions will explore the nature of our present policies, how they can be improved, and ways to more effectively harness them for meeting worldwide problems." Topics include international cooperation in the environmental, physical, social, and life sciences; new mechanisms for scientific cooperation in the future; science, technology, the military and arms control; legislative role in science policy; science, technology, and the developing countries; and the role of science policy in solving social problems.

19. U.S. Congress. 92d. House. Comm. on Science and Astronautics.
PUBLIC TECHNOLOGY; REPORT. 1972. 43p. (Committee print).
Sudocs no. Y4.Sci2:92-2/DD.
Notes the need for technology to help solve socioeconomic problems while making the best possible use of the country's scientific and technical manpower resources. Appendixes include findings and recommendations of two conference reports, and descriptive list (pp.31-37) of national and regional centers of effort in the field of public technology.

20. U.S. Congress. 92d. House. Comm. on Science and Astronautics.
TEACHING AND RESEARCH IN THE FIELD OF SCIENCE POLICY--A SURVEY. 1972. 110p. (Committee print).
Sudocs no. Y4.Sci2:92-2/CC.
Covers U.S. state-by-state, and Canadian universities with science policy offerings. A comprehensive directory.

21. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on International Cooperation in Science and Space. A GENERAL REVIEW OF INTERNATIONAL COOPERATION IN SCIENCE AND SPACE; HEARINGS. 1971. 359p.
Sudocs no. Y4.Sci2:92-1/4. (depository item).
Purpose is "to conduct a general review of the nature and extent of international cooperative programs in science and space to date; to gain perspective regarding the functions, activities, the interrelationships of the various Government agencies involved in such programs; to achieve a better understanding of the problems and obstacles encountered by our Government in its pursuit of international cooperative ventures; and to determine prospects for the future in these important activities."
"Summary of major international scientific and engineering programs," pp.189-201.

22. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development. GENETIC ENGINEERING; EVOLUTION OF A TECHNOLOGICAL ISSUE. 1972. 119p.
Sudocs no. Y4.Sci2:92-2/W. (Committee print).
"The purpose of this study is to: (1) review the status of research in genetic engineering and closely related fields of study; (2) identify the developing issues and their potential impact; and (3) report on recent efforts to provide for investigation and evaluation of these developments." Problems considered include "the use of genetic engineering to eliminate genetic diseases and the social control of the application of genetic engineering. Bibliography, pp.109-119.

23. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development. NATIONAL SCIENCE POLICY AND PRIORITIES ACT OF 1972; HEARINGS. 1972. 211p.
Sudocs no. Y4.Sci2:92-2/25. (depository item).
Hearings on S. 32, discussing "policies for new and better technology, and for dealing with the underutilization of our technical manpower." Includes of S. 32.

24. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development. SCIENCE POLICY; A WORKING GLOSSARY. 1972. 58p. (Committee print).
Sudocs no. Y4.Sci2:92-2/S.
"The purpose of this Glossary is to facilitate communication between the Congress and persons professionally engaged in the study of science policy. Some of the terms taken up here are used in various contexts to mean widely different things; writers in different countries or in different disciplines sometimes use different words for the same subject." Arranged alphabetically.

25. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development. SCIENCE, TECHNOLOGY, AND THE ECONOMY; HEARINGS. 1971. 161p. Sudocs no. Y4.Sci2:92-1/7. (depository item).

Purpose is to "explore the general relationships between support for science and technology and their effects on the economy of the United States and the rest of the world." Notes that "the economic effects of science and technology have become increasingly international in character. Both multinational corporations and nearly instantaneous exchange of information . . . encourage rapid transfer of technology across national boundaries." Hearings are addressed to two questions, "First, what total resources should we as a Nation invest in research and development, both in the public and private sectors? Second, what are the optimum ways for making these investments?"

"Partial Summary of Foreign Holdings of Multinational Companies," pp.82-86.

See also items 26 and 27, this bibliography.

26. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development. SCIENCE, TECHNOLOGY, AND THE ECONOMY; HEARINGS. 1972. 202p. Sudocs no. Y4.Sci2:92-2/23. (depository item).

The second series of hearings by the Committee on this topic. Takes "a close look at foreign experiences in utilizing science and technology in their economic planning process." See also items 25 and 27, this bibliography.

27. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development. SCIENCE, TECHNOLOGY, AND THE ECONOMY; INTERIM REPORT. 1972. 40p. (Committee print). Sudocs no. Y4.Sci2:92-2/0.

This report "reviews the progress of the study and identifies those legislative issues which the subcommittee feels deserve further careful consideration by the Congress. Basic principles which have emerged to date during the subcommittee study are set forth for further scrutiny by the full Committee and the Congress as a whole.

See also items 25 and 26, this bibliography.

28. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development. SELECTED READINGS ON SCIENCE, TECHNOLOGY, AND THE ECONOMY. 1971. 95p. (Committee print). Sudocs no. Y4.Sci2:92-1/E.

A collection of 50 excerpts from a variety of sources, whose purpose is to "call attention to those parts of the President's new economic policy that deal with research and development and foreign trade" and "to present a selected sampling of studies . . . on the relationships between science, technology, and the economy."

29. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development.
SUMMARY OF ACTIVITIES . . ., 1963-1972. 1972. 133p. (Committee print).
Sudocs no. Y4.Sci2:92-2/BB.
"Data presented is set forth in topical form and to a considerable extent, though not precisely, in chronological order. An effort has been make to describe the nature of each activity, the action taken and what, thus far, has been the effect of such action. In appropriate places, probable future activity is suggested." Science policy, pp.1-16. Environmental quality, pp.65-74. Technology assessment, pp.75-86.

30. U.S. Congress. 92d. House. Comm. on Science and Astronautics. Subcomm. on Science, Research, and Development.
TECHNICAL INFORMATION FOR CONGRESS; REPORT. Rev. 1971. 845p. (Committee print).
Sudocs no. Y4.Sci2:92-1/A. $4.55.
A collection of "case studies of selected past decisions by the Congress involving the interface between science and politics. The focus of the case studies is on the sources of the scientific and technical information and advice received by those participating in the decision process. The purpose of the case studies is to shed light on the processes involved in congressional decisions on scientific issues." Detailed table of contents.
"Technology assessment: a selected, annotated bibliography of recent publications, 1966-1971," pp.773-845.

31. U.S. Congress. 92d. Senate.
SUMMARY OF MAJOR ACCOMPLISHMENTS OF THE NINETY-SECOND CONGRESS, JANUARY 21, 1971, TO OCTOBER 18, 1972. 1972. 161p.
Senate Document 92-98. (depository item).
More accurately, a "summary of major legislation passed by the Senate during the 92d Congress." Arranged alphabeticallly by topic and name of act.

32. U.S. Congress. 92d. Senate. Comm. on Commerce.
INTERNATIONAL ENVIRONMENTAL SCIENCE; PROCEEDINGS OF THE JOINT COLLOQUIUM BEFORE THE COMM. ON COMMERCE . . . AND THE COMM. ON SCIENCE AND ASTRONAUTICS. 1971. 241p.
Sudocs no. Y4.C73/2:92-13. (depository item).
"The rationale for this colloquium is that environmental science and environmental quality are now recognized as parts of a major public policy issue. The proper relationship of man to his natural surroundings . . . and scientific information will necessarily lie at the base of wise future decisionmaking. The information that will be required--the international institutional structures suited to provide it-- and the political and related problems that are involved will be covered in this colloquium." See also item 33, this bibliography.

33. U.S. Congress. 92d. Senate. Comm. on Commerce.
A READER IN INTERNATIONAL ENVIRONMENTAL SCIENCE. 1971. 160p. (Committee print).
Sudocs no. Y4.C73/2:En8.
A compendium of articles submitted "as background information for the Joint Senate-House Colloquium on International Environmental Science on May 25-26, 1971." Arranged in three parts, viz., "Assessing the problem," "The role of science," and "International cooperation for environmental improvement." See also item 32, this bibliography.

34. U.S. Congress. 92d. Senate. Comm. on Government Operations.
AN INVENTORY OF CONGRESSIONAL CONCERN WITH RESEARCH AND DEVELOPMENT. Part 6: a bibliography. 1971. 26p.
Sudocs no. Y4.G74/6:R31/2/pt.6.
Bibliography of publications of the 92d Congress, 1st Session, concerning science and technology. Detailed subject indexing.

Ibid., part 7. 1972. 13p. Sudocs no. Y4.G74/6:R31/2/pt.7.
Covers 92d Congress, 2d Session.

35. U.S. Congress. 92d. Senate. Comm. on Interior and Insular Affairs.
CONGRESS AND THE NATIONS'S ENVIRONMENT;ENVIRONMENTAL AFFAIRS OF THE 91ST CONGRESS. 1971. 288p. (Committee print).
Sudocs no. Y4.In8/13:En8/4. $1.25.
"An analysis of environmental legislation passed in both sessions of the 91st Congress along with summaries of major reports and highlights of significant events associated with the congressional action." Appendix: "List of enactments of the 91st Congress pertinent to environmental quality," pp.245-288. See also item 36, this bibliography.

36. U.S. Congress. 93d. Senate. Comm. on Interior and Insular Affairs.
CONGRESS AND THE NATION'S ENVIRONMENT; ENVIRONMENTAL AND NATURAL RESOURCES AFFAIRS OF THE 92D CONGRESS. 1973. 1145p. (Committee print).
Sudocs no. Y4.In8/13:En8/4/973. $5.55.
"This summary identifies 27 different areas of natural resource and environmental management policy which were addressed by legislative proposals in the 92d Congress." Arranged by broad areas, viz., natural resources, environmental pollution. Each broad area divided into specific topics, e.g., energy and fuels, water pollution. Each topic accompanied by bibliography of congressional documents. Appendix A, "List of enactments of the 92d Congress pertinent to natural resources and environmental management," pp.1048-1127. See also item 35, this bibliography.

37. U.S. Congress. 92d. Senate. Comm. on Interior and Insular Affairs.
EVOLUTION AND DYNAMICS OF NATIONAL GOALS IN THE U.S. 1971. 58p. (Committee print).
Sudocs no. Y4.In8/13:92-2.
A 50-year historical examination, theoretical and applied, with recommendations for future work in national goals formulation.

38. U.S. Congress. 92d. Senate. Comm. on Interior and Insular Affairs.
NATIONAL GOALS SYMPOSIUM; HEARINGS . . . PURSUANT TO S. RES. 45, A NATIONAL FUELS AND ENERGY POLICY STUDY. 1971. 2 parts. 821p.
Sudocs no. Y4.In8/13:92-11/pts.1 + 2. (depository items).
Hearings on the topics of energy goals and national goals. Notes that "energy is the tool and energy policy is the method of directing the useful employment of the tool. Energy policy must, therefore, be considered against a larger background than simply the problem of meeting society's growing demand for energy supply. Energy policy should be designed to promote and obtain a broad range of generally agreed upon national goals, many of which are only indirectly related to existing or proposed energy systems." Two appendixes contain statements and supporting documentation, e.g., Walter Heller, "Coming to terms with growth and the environment," part 2, pp.592-608.

39. U.S. Congress. 92d. Senate. Comm. on Labor and Public Welfare.
NATIONAL SCIENCE POLICY AND PRIORITIES ACT OF 1972. 1972. 58p.
Senate Report 92-1028. (depository item).
Recommends passage of S. 32, which includes provisions to improve such areas as pollution, public health, and transportation.

40. U.S. Congress. 92d. Senate. Comm. on Rules and Administration.
Subcomm. on Computer Services.
OFFICE OF TECHNOLOGY ASSESSMENT FOR THE CONGRESS; HEARING . . . ON S. 2302 AND H.R. 10243. 1972. 120p.
Sudocs no. Y4.R86/2:T22. (depository item).
Background information on establishing the Office of Technology Assessment, whose basic responsibility would be "to provide an appraisal and 'early warning system' of the probable positive and negative impacts of the applications of technology, and to develop coordinate and analytical information which would assist the Congress in determining the relative priorities of programs before it." Includes texts of the bills. Reprints texts of several articles on the subject.

41. U.S. Congress. 92d. Senate. Comm. on Rules and Administration.
TECHNOLOGY ASSESSMENT ACT OF 1972; REPORT . . . TO ACCOMPANY H.R. 10243. 1972. 23p.
Senate Report 92-1123. (depository item).
Brief useful information on the bill to establish an Office of Technology Assessment for the Congress. "Fact sheet on technology assessment," pp.19-23.

42. U.S. Congress. 92d. Senate. Comm. on Rules and Administration. Subcomm. on Computer Services.
TECHNOLOGY ASSESSMENT FOR THE CONGRESS; STAFF STUDY. 1972. 105p. (Committee print).
The "first Senate publication on the subject of technology assessment." Primarily background material on legislative history of proposals for an Office of Technology Assessment, the technology assessment movement, and operational concepts for implementing technology assessment. Appendices include technology assessment definitions and a "Bibliographic review of technology assessment" (pp.83-105). Text of Public Law 92-484, the "Technology Assessment Act of 1972," pp.44-50.

43. U.S. Council on Environmental Quality.
ENVIRONMENTAL QUALITY; ANNUAL REPORT. 1970- .

1st, 1970.	326p.	Sudocs no. PrEx 14.1:970.		(depository item).	$1.75.
2nd, 1971.	360p.	"	971.	"	$2.00.
3rd, 1972.	450p.	"	972.	"	$2.00.

Comprehensive annual summary of policies, programs, and accomplishments, both legislative and administrative. Covers local, state, federal, regional, and international developments.

44. U.S. Council on Environmental Quality.
THE PRESIDENT'S . . . ENVIRONMENTAL PROGRAM. annual. 1971- .

1971.	306p.	Sudocs no. PrEx 14.2:En8/971.		(depository item).	$2.25.
1972.	229p.	"	972.	"	$1,75.
1973.	585p.	"	973.	"	$5.05.

Includes the President's Message on the Environment, bills submitted to Congress, letters of transmittal, analyses, Executive Orders, etc.

45. U.S. Dept. Of Health, Education, and Welfare.
A REPORT ON MEASUREMENT AND THE QUALITY OF LIFE, AND THE IMPLICATIONS FOR GOVERNMENT ACTION OF THE LIMITS OF GROWTH. 1973. 36p.
Two papers, the second being an HEW staff assessment of the Club of Rome study, The Limits of Growth, a computer simulation predicting environmental disaster. Attempts to provide some responses to questions such as "How can we know if the quality of life . . . is improving?" and "What effects do government programs have, and how can we change government policies and processes to improve the quality of life?" Concludes that "the direct and indirect messages carried by Limits are neither necessary nor sufficient grounds for radical action at this time. . . . The infringements on human freedom and material well-being brought by strict no-growth policies enforced by government . . . would probably be overwhelming . . . and they could well be unnnecessary."

46. U.S. Dept. of the Interior.
AN ANALYSIS OF THE ECONOMIC AND SECURITY ASPECTS OF THE TRANS-ALASKA PIPELINE. 1971 + 1972. 3 vols. (depository items).
v.1 Summary. 205p. Sudocs no. I 1.2:P66/2/v.1. $1.75.
v.2 Supporting analysis. 287p. Sudocs no. I 1.2:P66/2/v.2. $2.25.
v.3 Energy and policy alternatives. 214p.
Sudocs no. I 1.2:P66/2/v.3. $1.75.
Accompanies the final environmental impact statement on this project (item 47, this bibliography).

47. U.S. Dept. of the Interior.
FINAL ENVIRONMENTAL IMPACT STATEMENT; PROPOSED TRANS-ALASKA PIPELINE. 1972. 6 vols. (depository items).
v.1 Introduction and summary. 412p. Sudocs no. I 1.2:P66/v.1. $2.75.
v.2 Environmental setting. 449p. Sudocs no. I 1.2:P66/v.2. $5.50.
v.3 Environmental setting. 449p. Sudocs no. I 1.2:P66/v.3. $4.00.
v.4 Evaluation of environmental impact. 637p
Sudocs no. I 1.2:P66/v.4. $5.00.
v.5 Alternatives to the proposed action. 495p.
Sudocs no. I 1.2:P66/v.5. $4.25.
v.6 Other sections and attachments. 492p. Sudocs no. I 1.2:P66/v.6. $4.00.
An example of a monumental study reflecting complex conflicts among technological, economic, and environmental issues. See also item 46, this bibliography.

48. U.S. Environmental Protection Agency.
THE QUALITY OF LIFE CONCEPT; A POTENTIAL NEW TOOL FOR DECISION-MAKERS. 1973. 397p.
Sudocs no. EP 1.2:Q2. (depository item).
Results of a symposium held August 1972, whose objectives were to explore the quality of life (QOL) concept, to define QOL in terms of its components, and to develop suggested quantitative approaches to its use in guiding public policy. These results and an elaboration of the issues raised are summarized in section I. Section II is a revised version of an anthology first published in preparation for the symposium.

49. U.S. Federal Council for Science and Technology. Comm. on Intergovernmental Science Relations.
PUBLIC TECHNOLOGY, A TOOL FOR SOLVING NATIONAL PROBLEMS; REPORT. 1972. 60p.
Sudocs no. Y3.F31/16:2T22. (depository item). 40¢.
Also available from NTIS as document no. PB 209 621.
"The main thesis of this report is that State and local governments, to a large extent, are not prepared to handle this public technology role, and that the Federal Government is doing far too little to involve those units of government in the formulation of science and technology priorities addressed to domestic needs." Includes summary and recommendations, plus appendices with tables, charts, and lists.

50. U.S. Library of Congress. Congressional Research Service. Science Policy Division.
ACRONYMS AND ABBREVIATIONS OF ORGANIZATIONS FREQUENTLY APPEARING IN SCIENCE POLICY LITERATURE. 1973. 17p. (Document 73-19 SP).
A very selective listing of 77 acronyms and abbreviations of organizations, with short identifications of agencies. In most cases, the organic act creating the organization, the purpose, and illustrative activities or programs of each organization are briefly described.

51. U.S. National Institutes of Health.
SCIENCE, PUBLIC POLICY AND THE SCIENTIST ADMINISTRATOR; AN ANTHOLOGY. 1972. 265p.
Sudocs no. HE 20.3002:Sci2. (depository item).
"The purpose of this anthology is two-fold: first, it is intended to provide the reader with an understanding . . . of the many . . . issues affecting science and public policy. Secondly, it should provide a glimpse into those personalities and forces . . . that bear directly on those issues." Bibliography on the sociology of science, pp.90-95.

52. U.S. Office of Technology Assessment and Forecast.
TECHNOLOGY ASSESSMENT AND FORECAST; INITIAL PUBLICATION OF THE OFFICE. 1973. 123p.
Sudocs no. C 1.62:T22. (depository item).
"It is a basic premise of the program that the changing patterns of patent activity . . . can be an accurate indicator of technological activity throughout the world. . . . One of the objectives of the program is to identify those areas of technology in which a high proportion of the activity is of foreign origin" . . . as well as to "spotlight areas of technology exhibiting unusually rapid overall growth. This initial publication is designed to provide a sampling of the types of information and formats that can be provided in future reports. It contains analyses of 24 wide-ranging areas of technology."

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FEDERAL CONTRACT R AND D STUDIES AVAILABLE THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE (NTIS)

53. Black, Guy.
TECHNOLOGY ASSESSMENT--WHAT SHOULD IT BE? Wash., D.C., George Washington Univ., 1971. 52p. (Program of policy studies in science and technology staff discussion paper 211).
NTIS document no. PB 201 471.
Notes that "technology assessment is evaluation of change, whether or not the result of science and engineering, The analytical methods of the natural and social sciences, jurisprudence, etc., are used. . . . Relevance is a key factor, and what is relevant depends on the orientation. Technology assessment for different organizations must therefore differ if they are to be effective."
"Selected bibliography on technology assessment," pp.44-52. Brief annotations. Includes titles published 1967-1970.

54. Breger, G.E.
A SCIENCE POLICY INFORMATION NETWORK; GEORGIA-CAROLINA SCIENCE POLICY PROJECT. Columbia, Univ. of So. Carolina, 1971. 76p.
NTIS document no. PB 202 551-U. (supersedes no. PB 201 460).
"Attempts to delimit development and to set forth criteria for identifying science activities of state agencies. . . . Such a policy would seek to influence agency operations concerned with science and science-based aspects of regional development. . . . Policy would focus not only on science and technology per se, but also on the role of science and technology in the entire spectrum of development activities." Tables list agencies in development, agency scientific activities, and science policy information flow content and linkages.

55. Coates, Vary Taylor.
THE FEDERAL GOVERNMENT AND THE CURRENT DEVELOPMENT OF TECHNOLOGY ASSESSMENT. Wash., D.C., George Washington Univ., 1971. 16p. (Program of policy studies in science and technology occasional paper no. 11).
NTIS document no. PB 201 470.
"This paper outlines the current status and degree of utilization of Technology Assessment by federal agencies on the basis of a comprehensive survey. . . . Other aspects of Technology Assessment as practiced by government agencies which are discussed are forecasting, simulation, public participation, and the needs of Congress." Includes descriptions of "early experiences of agencies in writing Environmental Impact Statements."

56. Coates, Vary Taylor.
TECHNOLOGY AND PUBLIC POLICY; THE PROCESS OF TECHNOLOGY ASSESSMENT IN THE FEDERAL GOVERNMENT. Wash., D.C., George Washington Univ., 1972. 3 vols.
v.1 355p. NTIS document no. PB 211 453.
v.2 263p. " PB 211 454.
v.3 50p. " PB 211 455.
"A descriptive and analytical study . . . of the process of planning, programming, and evaluation of technological projects and programs as carried out by 86 offices within federal executive agencies. The focus is on the extent to which techniques of technology assessment are used. . . . Concludes that the federal technology assessment process has been broadened in the last five years . . . but that improvement is slow and differs from agency to agency." Includes bibliography. Volume 3 is the summary report.

57. Green, Harold P.
THE LAWS INTERFACE WITH EXPANDING TECHNOLOGY. Wash., D.C., George Washington Univ., 1972. 14p.
NTIS document no. N73 12987.
Describes the role of law in technology assessment, in generalized terms of a legal system as it confronts expanding technology.

58. Kasper, Raphael G.
SOME COMMENTS ON TECHNOLOGY ASSESSMENT AND THE ENVIRONMENT. Wash., D.C., George Washington Univ., 1970. 16p. (Program of policy studies in science and technology occasional paper no. 8).
NTIS document no. PB 196 640.
States that "one of the more noticeable results of the application of new technologies has been the alteration of the environment. Thus the currently popular notion of technology assessment is quite closely related to the examination of what some have called our 'environmental crisis.'" Continues to define and discuss the relationship.

59. Mayo, Louis H.

THE CONTEXTUAL APPROACH TO TECHNOLOGY ASSESSMENT; IMPLICATIONS FOR "ONE-FACTOR FIX" SOLUTIONS TO COMPLEX SOCIAL PROBLEMS. Wash., D.C., George Washington Univ., 1971. 87p. (Program of policy studies in science and technology monograph no. 9).

NTIS document no. PB 199 162.

"Examines the notion of the "one-factor fix" (legal, economic, or technical) as a means of solving existing social problems or achieving major social goals in modern, complex society. The purpose of the paper is . . . to demonstrate that technology assessment can assist in identifying the mix of means through time phases which will lead to more satisfying alternative distributions of social benefits and socials costs associated with public programs and projects having major technological components."

60. Mayo, Louis H.

SOME IMPLICATIONS OF THE TECHNOLOGY ASSESSMENT FUNCTION FOR THE EFFECTIVE PUBLIC DECISION-MAKING PROCESS.. Wash., D.C., George Washington Univ., 1971. 35p. (Program of policy studies in science and technology occasional paper no. 12).

NTIS document no. PB 201 049.

"This paper undertakes a preliminary provisional assessment of the prospects for the establishment of an adequate Technology Assessment Function and the implications of the assessment function for the Public Decision Process. Substantial development of data and skill resources requisite to the performance of assessment tasks is anticipated. Effects of the Technology Assessment Function on each phase of the Public Decision Process are briefly explored."

61. Mitre Corporation.

A TECHNOLOGY ASSESSMENT METHODOLOGY . . . prepared in cooperation with and for the Office of Science and Technology, Executive Office of the President. McLean, Va., 1971. 7 vols.

v.1 Some basic propositions. 307p	NTIS no.	PB 202 778 01
v.2 Automotive emissions. 205p.		PB 202 778 02
v.3 Computer-communications networks. 261p.		PB 202 778 03
v.4 Enzymes (Industrial). 226p.		PB 202 778 04
v.5 Mariculture (Sea Farming). 205p.		PB 202 778 05
v.6 Water pollution: domestic wastes. 331p.		PB 202 778 06
v.7 Project summary. 35p.		PB 202 778 07

Available as a set under NTIS document no. PB 202 778.

The research described is concerned with the development of an analytical framework and a structural procedure that can be used for anticipating the social impacts of major technologies. Detailed findings are reported in vols. 1-6.

62. Mock, John E.
SCIENCE FOR SOCIETY. Atlanta, Georgia Science and Technology Commission, 1971. 202p.
NTIS document no. PB 212 860.
Proceedings of the first National Science Conference held on federal, state, and local science relationships. Attempts to examine federal science policies as they affect state and local programs, propose new federal-state relationships, improve communications, examine critical problems facing society, etc.

63. Mottur, Ellis R.
TECHNOLOGY ASSESSMENT AND CITIZEN ACTION. Wash., D.C., George Washington Univ., 1971. 30p.
NTIS document no. N71 38782.
Outlines a national technology assessment system, emphasizing the essential role of citizen participation. Proposes establishing a Citizens Assessment Administration to ensure effective participation.

64. Mottur, Ellis R.
TECHNOLOGY ASSESSMENT AND ENVIRONMENTAL ENGINEERING. Wash., D.C., George Washington Univ., 1971. 19p. (Program of policy studies in science and technology occasional paper no. 9).
NTIS document no. PB 197 687.
The theme of this presentation is that "environmental engineering has a crucial role to play in the process of technology assessment; and that by effectively fulfilling that role, environmental engineering can make a significant contribution to the . . . projects directed at society's besetting problems in areas such as the environment. . . . The development of national policies and programs . . . remains the responsibility of the President and the Congress, with the support of leaders of the technical community."

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RAND REPORTS

65. Chamberlain, Ethel L.
TECHNOLOGY ASSESSMENT: A BIBLIOGRAPHY. 1971. 10p.
Rand document no. P 4541. (Also available as NTIS no. AD 727 554).
A "selected bibliography dealing with changes in technology on existing technologies, social systems, and the environment in general. . . .Included are references to industry studies as well as theoretical discussions and some studies of the future. . . . Alphabetical by author." Covers 1965-1970.

66. Harrison, Annette.
BIBLIOGRAPHY ON AUTOMATION AND TECHNOLOGICAL CHANGE AND STUDIES OF THE FUTURE. 1971. 58p.
Rand document no. P 3365-4.
"Alphabetically arranged . . . contains approximately 800 entries . . . together with some 400 additional entries published after 1967." Appendix, pp.56-58, lists 43 private organizations "currently engaged, or planning to engage in future-oriented work."

67. Alesch, Daniel J.
A STRATEGY FOR DEVELOPING IN STATE GOVERNMENT THE CAPABILITY TO CHANGE THROUGH SCIENCE AND TECHNOLOGY. 1971. 26p.
Rand document no. R 785 NSF.
Analysis "to provide policy guidance for consideration in developing science and technology programs for the states. Technology holds the promise of enabling state government to anticipate problems and to perform existing functions more efficiently, effectively, and adequately."

68. Libby, L.M.
TECHNOLOGICAL RISKS VERSUS NATURAL CATASTROPHE. 1971. 6p.
Rand document no. P 4602.
"The risk of death from unavoidable natural catastrophes is compared with risk of death from the electrical industry, including nuclear power. . . . Such comparisons may help government agencies balance public risks against public benefits in planning for new technologies."

69. Salter, R.M., and P.T. Van Dyke.
THE PRICE OF FIRE: THE APPLICATION OF MODERN TECHNOLOGY TO THE IMPROVEMENT OF MAN'S ENVIRONMENT. 1972. 28p.
Rand document no. P 4700.
"Methods of applying the 'Promethean fire' of technology to solve environmental problems. Less technology is not the answer. . . . technological applications include monitoring and abatement." Notes that many government agencies are "unschooled in the process of mounting large R & D programs on the scale demanded by our growing ecological problems, and a certain amount of organizational learning will be necessary." Also iterates that "there is the ever-present possibility . . . that we have already passed the point of no return in critical environmental areas."