

ARCHIVES COPY DO NOT REMOVE FROM LIBRARY

WHAT OTA IS WHAT OTA DOES HOW OTA WORKS

LIBRARY OFFICE OF TECHNOLOGY ASSESSMENT CONGRESS OF THE UNITED STATES WASHINGTON, D. C. 20510

> CONGRESS OF THE UNITED STATES Office of Technology Assessment

Washington, D. C. 20510

Office of Technology Assessment

Congressional Board of the 99th Congress

TED STEVENS, Alaska, Chairman

MORRIS K. UDALL, Arizona, Vice Chairman

Senate

House GEORGE E. BROWN, JR.

California

JOHN D. DINGELL

Michigan

CLARENCE E. MILLER

ORRIN G. HATCH Utah

CHARLES McC. MATHIAS, JR. Maryland

> EDWARD M. KENNEDY Massachusetts

ERNEST F. HOLLINGS South Carolina

CLAIBORNE PELL Rhode Island Ohio COOPER EVANS Iowa

Vacant at Press Time

JOHN H. GIBBONS (Nonvoting)

Advisory Council

WILLIAM J. PERRY, Chairman Hambrecht & Quist

DAVID S. POTTER, Vice Chairman General Motors Corp.

> EARL BEISTLINE University of Alaska

CHARLES A. BOWSHER General Accounting Office CLAIRE T. DEDRICK California Land Commission JAMES C. FLETCHER CARL N. HODGES University of Arizona CHARLES N. KIMBALL

Midwest Research Institute

University of Pittsburgh S. DAVID FREEMAN Consultant

GILBERT GUDE

Congressional Research Service

AN RACHEL McCULLOUCH University of Wisconsin

> LEWIS THOMAS Memorial Sloan-Kettering Cancer Center

Director

JOHN H. GIBBONS

Office of Assessn

WHA

OTA is a nonpartisan and the United States Congress by jor public policy issues relat change. (See pg. 5)

WHAT

OTA works directly with a providing them with detailed a responding to specific questio

HOW O

OTA's multidisciplinary assessments. It draws extensiv fessional resources of the priv research organizations, indust p. 8).

Excerpt From Technoic Public Law 92-484, Octob

"FINDINGS AND DE

SEC. 2. The Congress hereby finds and d
(a) As technology continues to change a
(1) large and growing in scale; and
(2) increasingly extensive, pervasiv
adverse, on the natural and social environ
(b) Therefore, it is essential that,
quences of technological application
ered in determination of public policiens."

essment

h Congress

nan

Chairman

House

ORGE E. BROWN, JR. California

JOHN D. DINGELL Michigan

ARENCE E. MILLER Ohio

COOPER EVANS Iowa

Vacant at Press Time

CARL N. HODGES ission University of Arizona CHARLES N. KIMBALL

IER Midwest Research Institute rgh AN

CK

RACHEL McCULLOUCH University of Wisconsin

Service Cancer Center

LEWIS THOMAS Memorial Sloan-Kettering

Office of Technology Assessment (OTA)

WHAT OTA IS

OTA is a nonpartisan analytical support agency that serves the United States Congress by providing objective analyses of major public policy issues related to scientific and technological change. (See pg. 5)

WHAT OTA DOES

OTA works directly with and for the committees of Congress, providing them with detailed analyses of technological issues and responding to specific questions based on that analysis. (See p. 7)

HOW OTA WORKS

OTA's multidisciplinary staff plans, directs, and drafts all assessments. It draws extensively on the broad technical and professional resources of the private sector, including universities, research organizations, industry, and public interest groups. (See p. 8).

Excerpt From Technology Assessment Act of 1972 Public Law 92-484, 92d Congress, H.R. 10243 October 13, 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.

OTA ORGANIZATION CHART*



*See page 19 for telephone listing.

4

**Operations Division consists of the following units: Administrative Services, Budget and Financial Operations, Information Center, Personnel Office, and Publishing Office.

The Or

The Congressional Board

A 12-member bipartisan con Representatives—governs OTA. President pro tempore of the Sena tively. A Chairman and Vice Cha posts alternate between the Senat Traditionally, the Chairman is a me man of the other. (Current Board cover.)

The Council

An Advisory Council of 10 p nology, and education, appointe OTA assessments and other ma United States and the Director of the Library of Congress are also

The Director

The Director is appointed b member. He has full authority and ing OTA's resources according t

The Staff

OTA has a permanent staff span the spectrum of physical, lif and medicine.



WHAT OTA IS

The Organization

The Congressional Board

A 12-member bipartisan congressional Board—six Senators and six Representatives—governs OTA. Board Members are appointed by the President pro tempore of the Senate and the Speaker of the House, respectively. A Chairman and Vice Chairman are elected by the Board. These posts alternate between the Senate and House in succeeding Congresses. Traditionally, the Chairman is a member of one major party; the Vice Chairman of the other. (Current Board Members are listed on the inside front cover.)

The Council

An Advisory Council of 10 public members eminent in science, technology, and education, appointed by the Board, advises the Board on OTA assessments and other matters. The Comptroller General of the United States and the Director of the Congressional Research Service of the Library of Congress are also members.

The Director

The Director is appointed by the Board and serves as a nonvoting member. He has full authority and responsibility for organizing and managing OTA's resources according to Board policies.

The Staff

OTA has a permanent staff of 95 to 100 professionals whose skills span the spectrum of physical, life, and social sciences; engineering; law; and medicine.

The Task

OTA's job is to provide congressional committees with objective analyses of the emerging, difficult, and often highly technical issues of the late 20th century. It explores complex issues involving science and technology, helping Congress to resolve uncertainties and conflicting claims, identifying alternative policy options, and providing foresight or early alert to new developments which could have important implications for future Federal policy. OTA does not advocate particular policies or actions, but points out their pros and cons and sorts out the facts.

Technology Issues

A growing number of major issues of congressional concern—agriculture, biotechnology, energy, environment, health, national security, natural resources, telecommunications, transportation, water, world trade are complex, highly technical, involve long-range impacts, and contain social and economic factors.

Take, for example, the issue of long-term energy sources. After three decades of lessening reliance on coal, growing dependence on gas and oil, and continued major public investment in nuclear power, our Nation still has no definitive plan of action to provide a transition over the next several decades to an energy use and supply system that is economically sensible, environmentally acceptable, and sustainable over a long period of time. The security and economic future of our Nation probably depend more heavily on energy than on any single resource. In making decisions on national energy policy, Congress must examine and assess an intricate array of technical realities and uncertainties, scientific knowledge, economic tradeoffs, social values and perceptions of risk and equity, and political judgments and tradeoffs.

During the 1960s, Congress found that failure to consider the complexity, cost, breadth, and long-term implications of technology led to policy decisions that were sometimes inappropriate, ineffective, or worse. In deciding such issues, Congress was all too often forced to rely on inadequate, conflicting, and biased information from outside sources. In 1972, after a long series of studies and hearings, Congress authorized the establishment of OTA as a congressional source of information and analysis that is nonpartisan, expert, objective, and anticipatory.

In the 1980s, OTA stands as the primary agency of Congress charged with analyzing the influence of science and technology on society and the implications for Federal policy. O' large-scale, complex, and sophist classified and unclassified analys ty, technology transfer, internat resources, wastes, air and water, as biotechnology and program

WHAT

Assessment Rec

According to the OTA act made by the chairman of any cc or on behalf of a ranking mino members; by the OTA Board; with the Board.

The Board decides whethe assessment. First, the OTA staf resources and time it might requ to suit OTA's resources and con a formal proposal to the Board

OTA Studi

The bulk of OTA's work cer may take one to two years to co and current work to provide a congressional needs, such as brie timely responses to committees assessments.

In order to assure that OTA agenda, OTA provides advice to testimony at hearings, conducts based on its ongoing assessmen committees is the foundation o resource to the Congress is bui mmittees with objective anally technical issues of the late lving science and technology, d conflicting claims, identifyforesight or early alert to new mplications for future Federal policies or actions, but points acts.

sues

congressional concern—agrint, health, national security, ortation, water, world trade— -range impacts, and contain

m energy sources. After three ving dependence on gas and in nuclear power, our Nation de a transition over the next y system that is economically ustainable over a long period our Nation probably depend esource. In making decisions tamine and assess an intricate cientific knowledge, economic risk and equity, and political

t failure to consider the comons of technology led to policy e, ineffective, or worse. In deforced to rely on inadequate, itside sources. In 1972, after ress authorized the establishinformation and analysis that cipatory.

y agency of Congress charged echnology on society and the implications for Federal policy. OTA's current subject areas cover numerous large-scale, complex, and sophisticated technologies. Its work includes both classified and unclassified analyses of issues dealing with national security, technology transfer, international trade, health, energy and material resources, wastes, air and water, agriculture, and new developments such as biotechnology and programmable automation.

WHAT OTA DOES

Assessment Requests and Approvals

According to the OTA act, requests for OTA assessments may be made by the chairman of any congressional committee acting for himself, or on behalf of a ranking minority member, or a majority of committee members; by the OTA Board; or by the OTA Director, in consultation with the Board.

The Board decides whether or not OTA will undertake a requested assessment. First, the OTA staff analyzes the request to determine what resources and time it might require and what modifications it might need to suit OTA's resources and congressional needs. The staff then presents a formal proposal to the Board, which makes the final decision.

OTA Studies and Proposals

The bulk of OTA's work centers on comprehensive assessments that may take one to two years to complete. OTA also draws upon its studies and current work to provide a variety of responses to meet immediate congressional needs, such as briefings, testimony and interim reports. These timely responses to committees are based on data in current and past assessments.

In order to assure that OTA's work is responsive to the congressional agenda, OTA provides advice to committee members and staff, presents testimony at hearings, conducts workshops, and provides interim reports based on its ongoing assessments. This close working relationship with committees is the foundation on which the unique value of OTA as a resource to the Congress is built.

HOW OTA WORKS

Program Teams

The OTA staff consists of skilled professionals with advanced training primarily in the physical, life, and social sciences, and engineering. The OTA staff is organized into nine program areas: energy and materials; international security and commerce; industry, technology, and employment; food and renewable resources; health; biological applications; communication and information technologies; oceans and environment; and science, transportation, and innovation.

These program teams conduct specific assessments, working closely with congressional committee staff. The team develops the overall study plan, performs research, identifies, enlists, and works with the appropriate contractors and consultants, analyzes and integrates their work, and develops the final report. In cases where the subject spans more than one program, a team of professionals from these areas is created.

Panels

Throughout each project, OTA uses advisory panels of experts on a particular subject as a way of ensuring that reports are objective, fair, and authoritative. Such panels include not only distinguished scientists and engineers, but also affected and interested parties from labor, industry, the academic community, public interest groups, State and local government, and the citizenry at large. These panels help to shape OTA studies by defining them initially, critiquing them while in process, and reviewing the reports before they are released.

Private Sector Involvement

OTA depends on the private sector as a source of expertise and perspectives while an assessment is in progress. Contractors and consultants are drawn from industry, universities, private research organizations, and public interest groups.

OTA also works to ensure that the views of the public are fairly reflected in its assessments. It involves the public in many ways—through advisory panels, workshops, surveys, and formal and informal public meetings.

8

These interactions help OTA to between the perspectives of te

Releas

After a completed assessn copies of the formal report are s for its review and authorization not object, the report is forware maries are sent to all Members leased to the public. OTA asses Printing Office and are frequen

Researc

OTA works with the other of gressional Budget Office, the Co of Congress, and the General *t* search Notification System. Its change information to avoid du organization meet regularly, an a central directory of congressi

Similarly, OTA stays in to analysts and researchers in Feder and throughout the country, b OTA can frequently obtain val

38-854 0 -85 - 2

ORKS

ms

sionals with advanced trainl sciences, and engineering. areas: energy and materials; y, technology, and employbiological applications; comceans and environment; and

assessments, working closely in develops the overall study d works with the appropriate integrates their work, and subject spans more than one areas is created.

dvisory panels of experts on at reports are objective, fair, ly distinguished scientists and parties from labor, industry, ups, State and local governls help to shape OTA studies ile in process, and reviewing

olvement

source of expertise and per-Contractors and consultants research organizations, and

of the public are fairly reflected any ways—through advisory ad informal public meetings. These interactions help OTA to identify and take into account contrasts between the perspectives of technically trained and lay citizens.

Release of Reports

After a completed assessment has been approved by the Director, copies of the formal report are sent to the Technology Assessment Board for its review and authorization for release. If a majority of the Board does not object, the report is forwarded to the requesting committee(s), summaries are sent to all Members of Congress, and then the report is released to the public. OTA assessments are published by the Government Printing Office and are frequently reprinted by commercial publishers.

Research Coordination

OTA works with the other congressional support agencies—the Congressional Budget Office, the Congressional Research Service of the Library of Congress, and the General Accounting Office—in an interagency Research Notification System. Its purpose is to coordinate activities and exchange information to avoid duplication of effort. Representatives of each organization meet regularly, and biweekly status reports are published in a central directory of congressional research activity.

Similarly, OTA stays in touch not only with the published work of analysts and researchers in Federal executive and legislative branch agencies and throughout the country, but also with their current activities. Thus, OTA can frequently obtain valuable unpublished information.

38-854 0 -85 - 2

SELECTED PUBLICATIONS OF INTEREST

ENERGY, MATERIALS, AND INTERNATIONAL SECURITY DIVISION

U.S. Natural Gas Availability: Gas Supply Through the Year 2000—Analyzes the key technical and physical parameters that determine the resource base, production rates, and costs of all categories of below-ground natural gas and assesses future technology trends and R&D needs that may accelerate these trends.

*U.S. Vulnerability to an Oil Import Curtailment: The Oil Replacement Curtailment—Examines the opportunities and problems that characterize various technical responses that could supplement the Strategic Petroleum Reserve to meet a disruption in imported oil.

Environmental Protection in the Federal Coal Leasing Program—Outlines DOI's prelease environmental assessment and planning process, describes how that process was implemented in the five Western coal regions, discusses the issues that have been raised with respect to the adequacy of that process and its implementation and reviews policy options that would allow leasing to proceed in an environmentally compatible manner. *Nuclear Power in an Age of Uncertainty—Examines the future of nuclear power and describes the current

technological, economic, financial, public perception, and regulatory problems facing the domestic industry. ***Industrial and Commercial Cogeneration**—Examines the technical features of commercial and advanced

cogeneration technologies, including requirements for connecting cogenerations to the utility grid and technologies for storing thermal or electrical energy.

*Industrial Energy Use—Examines four American industries (pulp and paper, steel, petroleum refining, and organic chemical production).

*Increased Automobile Fuel Efficiency and Synthetic Fuels: Alternatives for Reducing Oil Imports—Assesses increased automobile fuel efficiency and synthetic fuels production with respect to their potential to reduce conventional oil consumption, and their costs and impacts.

*Energy Efficiency of Buildings in Cities—Focuses on the interaction of technology and policy for new and existing buildings in U.S. cities for the next two decades.

*Solar Power Satellite Systems—Assesses the potential advantages, shortcomings, and impacts of solar satellite systems.

Nuclear Powerplant Standardization—Provides the essential background material for a broad understanding of the nuclear industry, its institutions and their relationship to standardization.

The Future of Liquefied Natural Gas Imports—Evaluates projected U.S. demand, global availability, cost and financing, and security of foreign supplies.

*Energy From Biological Processes—Evaluates the energy potential of plant and animal matter. Conservation and Solar Energy Programs of the Department of Energy—Analyzes the progress and direction

of five major conservation and solar energy programs of the U.S. Department of Energy. **Residential Energy Conservation**—Examines the prospects of existing and new technologies for reducing energy consumption in homes.

The Direct Use of Coal: Prospects and Problems of Production and Combustion—Assesses the prospects as well as the environmental, health, safety, and other problems of mining and burning significantly more coal than at present.

Application of Solar Technology to Today's Energy Needs—Evaluates the economic, technical, and environmental impacts of solar energy systems located at the point of use.

*A Technology Assessment of Coal Slurry Pipelines—Compares the cost of transporting coal by slurry pipelines to rail for certain routes.

*Technologies to Reduce U.S. Materials Import Vulnerability—Identifies major changes in materials vulnerability that are likely to occur over the next 25 years because of advances in such fields as electronics, energy, and transportation.

*Wood Use: U.S. Competitiveness and Technology-Surveys forest products industry, domestic demand, and world markets.

*Technologies and Management Strategies for Hazardous Waste Control—Assesses the criteria for defining hazardous waste and for judging the relative health and environmental hazards of a given waste.

*An Assessment of Development and Production Potential of Federal Coal Leases—Analyzes all mining activities, examines present and potential development value, estimates revenues to the Federal Government and deep-mining feasibility on Federal leases.

*Summary available.

10

*Technology and Steel Industry Competitiveness international competitiveness of the U.S. steel in *An Assessment of Oil Shale Technologies—Ass opment of oil shale resources.

Technical Options for Conservation of Metals: (kinds and amounts of waste that occur in our u Materials and Energy From Municipal Waste: R and Beverage Container Deposit Legislation—Exam

and recovering resources from municipal solid v Management of Fuel and Nonfuel Minerals in F

ern the exploration, development, and productio Analysis of Laws Governing Access Across Fe regulations, and policies affecting access across *Technology Transfer to the Middle East—Focu

trade during the past decade and includes an a *International Competitiveness in Electronics—I of the electronics industry that could most readi *Technology and Soviet Energy Availability—Ana other Western energy technology and examines *WW Micelle Reading—Accesses the technical fors

*MX Missile Basing—Assesses the technical feas consequences of various MX-basing modes.

*U.S. Industrial Competitiveness: A Comparison forts in the study of industrial competitiveness t

*Taggants in Explosives—Assesses the technic ment utility of a proposal to require that commercial taggants.''

Technology and East-West Trade—Examines the transfer to the Communist world.

*The Effects of Nuclear War-Examines the soc of nuclear attacks on the United States and the

U.S. Natural Gas Availability: Conventional Gas Evaluates the future prospects for the discovery and

Remote Sensing and the Private Sector: Issues for priate requirements and conditions for private se

UNISPACE '82: A Context for International Cooper issues which arose at this conference and their

Nonnuclear Industrial Waste: Classifying for Ha: nature and magnitude of hazardous waste dispo-World Petroleum Availability: A Technical Memor

duction during the next two decades.

Gasohol: A Technical Memorandum—Discusse

HEALTH AND LIFE SCIENCES DIVISION

*Technology and Aging in America—Assesses the employment, housing and public services, and ir *Commercial Biotechnology: An International An applied to industries involved in agriculture, phan *The Role of Genetic Testing in the Prevention of Oc state of the art.

*Impacts of Applied Genetics: Micro-Organisms, and molecular genetic technologies to micro-orga

*World Population and Fertility Planning Technolog and programs view planned birth technologies, and world population growth in the last 20 years.

*Technologies to Sustain Tropical Forest Resource States and the world.

*Summary available

ICATIONS EST

N

—Analyzes the key technical and physical nd costs of all categories of below-ground ds that may accelerate these trends. nt Curtailment—Examines the opportunities could supplement the Strategic Petroleum

tlines DOI's prelease environmental assessemented in the five Western coal regions, quacy of that process and its implementain an environmentally compatible manner. inuclear power and describes the current ry problems facing the domestic industry. cal features of commercial and advanced ogenerations to the utility grid and technol-

and paper, steel, petroleum refining, and

atives for Reducing Oil Imports—Assesses a with respect to their potential to reduce

tion of technology and policy for new and

s, shortcomings, and impacts of solar sat-

ground material for a broad understanding tandardization.

ed U.S. demand, global availability, cost

tial of plant and animal matter.

argy—Analyzes the progress and direction Department of Energy. isting and new technologies for reducing

nd Combustion—Assesses the prospects of mining and burning significantly more

ates the economic, technical, and environ-

cost of transporting coal by slurry pipelines

fies major changes in materials vulnerability in such fields as electronics, energy, and

est products industry, domestic demand,

Control—Assesses the criteria for defining nental hazards of a given waste. al Coal Leases—Analyzes all mining activi-

revenues to the Federal Government and

*Technology and Steel Industry Competitiveness—Assesses how and when new technology can improve the international competitiveness of the U.S. steel industry.

*An Assessment of Oil Shale Technologies — Assesses the status and potential of technologies for the development of oil shale resources.

Technical Options for Conservation of Metals: Case Studies of Selected Metals and Products-Explores the kinds and amounts of waste that occur in our use of eight critical metals.

Materials and Energy From Municipal Waste: Resource Recovery and Recycling From Municipal Solid Waste and Beverage Container Deposit Legislation—Examines present and potential technologies for producing energy and recovering resources from municipal solid waste.

Management of Fuel and Nonfuel Minerals in Federal Land—Analyzes Federal laws and practices that govern the exploration, development, and production of fuel and nonfuel minerals in onshore Federal Lands.

Analysis of Laws Governing Access Across Federal Lands: Options for Access in Alaska—Analyzes laws, regulations, and policies affecting access across federally owned lands to minerals on non-Federal lands. *Technology Transfer to the Middle East—Focuses on international competition in Middle East technology

trade during the past decade and includes an analysis of future prospects for technology trade. *International Competitiveness in Electronics—Examines those factors contributing to the competitiveness

of the electronics industry that could most readily be affected by U.S. Government policy. *Technology and Soviet Energy Availability—Analyzes and identifies various levels of availability of U.S. and

other Western energy technology and examines the impact on Soviet energy production to 1990.

*MX Missile Basing—Assesses the technical feasibility, strategic utility, cost, impact on the region, and future consequences of various MX-basing modes.

***U.S. Industrial Competitiveness: A Comparison of Steel, Electronics, and Automobiles**—Extends OTA's efforts in the study of industrial competitiveness to a cross-industry comparison.

*Taggants in Explosives—Assesses the technical feasibility, safety ramifications, costs, and law enforcement utility of a proposal to require that commercial explosives be manufactured with ''identification and detection taggants.''

Technology and East-West Trade—Examines the economic, military, and political implications of technology transfer to the Communist world.

*The Effects of Nuclear War—Examines the social, economic, political, and health effects of various levels of nuclear attacks on the United States and the Soviet Union.

U.S. Natural Gas Availability: Conventional Gas Supply Through the Year 200: A Technical Memorandum— Evaluates the future prospects for the discovery and production of conventional natural gas in the Lower 48 States.

Remote Sensing and the Private Sector: Issues for Discussion: A Technical Memorandum—Focuses on appropriate requirements and conditions for private sector ownership of the U.S. land remote-sensing system.

UNISPACE '82: A Context for International Cooperation and Competition: A Technical Memorandum—Discusses issues which arose at this conference and their significance.

Nonnuclear Industrial Waste: Classifying for Hazard Management: A Technical Memorandum—Reviews the nature and magnitude of hazardous waste disposal.

World Petroleum Availability: A Technical Memorandum—Examines prospects for world oil supplies and production during the next two decades.

Gasohol: A Technical Memorandum-Discusses the technology and economics of gasohol production.

HEALTH AND LIFE SCIENCES DIVISION

***Technology and Aging in America**—Assesses the impact of technology in four areas—health and life sciences, employment, housing and public services, and international aspect.

*Commercial Biotechnology: An International Analysis—Describes the state of the art of biotechnology as applied to industries involved in agriculture, pharmaceuticals, and chemicals.

*The Role of Genetic Testing in the Prevention of Occupational Disease—Examines questions on the technological state of the art.

*Impacts of Applied Genetics: Micro-Organisms, Plants, and Animals—Examines the application of classical and molecular genetic technologies to micro-organisms, plants, and animals.

*World Population and Fertility Planning Technologies: The Next 20 Years—Examines how Government policies and programs view planned birth technologies, and how new international population assistance has changed world population growth in the last 20 years.

*Technologies to Sustain Tropical Forest Resources—Examines the importance of tropical forests to the United States and the world.

*Summary available.

*Water-Related Technologies for Sustainable Agriculture in U.S. Arid and Semiarid Lands—Focuses on U.S. and foreign experience.

Plants: The Potentials for Extracting Protein, Medicines, and Other Useful Chemicals—Identifies technological opportunities and constraints for commercially developing protein, pharmaceuticals, chemicals, and other associated extracts from plants.

*Impacts of Technology on U.S. Cropland and Rangeland Productivity—Examines the effects of presently used technologies on the capacity of cropland and rangeland resource base to sustain high levels of production.

*U.S. Food and Agricultural Research—Analyzes the scientific base for establishing national, regional, and local research problems and the role of Federal, State, and private institutions in solving these problems. Environmental Contaminants in Food—Discusses the different types and sources of chemical and radioac-

tive contaminants in food. *Pest Management Strategies in Crop Protection—Reviews the array of tactics currently used to control agri-

cultural pests.

Open Shelf-Life Dating of Food—Addresses the practicality, benefits, and costs of open shelf-life dating of food products.

Drugs in Livestock Feed—Analyzes the use of antibacterial and other drugs to promote growth and prevent disease in livestock.

Nutrition Research Alternatives—Evaluates alternative strategies to redirect Federal research toward examining the relationship between nutrition and the changing health problems of Americans.

Organizing and Financing Basic Research To Increase Food Production—Evaluates alternative methods for organizing and funding basic research in the biological sciences.

Perspectives on Federal Retail Food Grading—Assesses the capability of the current food grading system used by the Federal Government.

Postmarketing Surveillance of Prescription Drugs—Describes the drug approval process, the history and objectives of postmarketing surveillance, the methods employed to accomplish it, and current activities in postmarketing surveillance.

*Blood Policy and Technology—Assesses technologies affecting the availability, users, and risks of blood. To be assessed: blood collection, processing, storage, and distribution; identification, isolation, production, and use of blood components; blood substitutes; and identification and prevention of blood-transmitted diseases and other risks.

*Federal Policies and the Medical Devices Industry—Provides information about the nature of firms that manufacture medical technologies, conducts cases studies of selected medical devices, and examines present and proposed Federal policies that influence the medical devices industry and the cost and effectiveness of medical devices.

*Medical Technology and the Costs of the Medicare Program—Examines the range of policies to contain Medicare costs and impacts on the adoption and use of medical technology.

Update of Federal Activities Regarding the Use of Pneumococcal Vaccine: A Technical Memorandum—Provides an update on Federal policies related to key area of vaccine and immunization activities.

*Medical Technology Under Proposals To Increase Competition in Health Care—Analyzes the implications for medical technology of two categories of proposals to increase competition.

MEDLARS and Health Information Policy—Analyzes the arguments for and against the National Library of Medicine's creation and dissemination of health-related bibliographic information.

*Strategies for Medical Technology Assessment—Examines the appropriateness and validity of existing assessment methods, such as controlled clinical trials, epidemiological studies, and consensus exercises.

*Technology and Handicapped People-Provides information on general issues, such as the state of the art of evaluating efficacy, safety, and cost.

Cost-Effectiveness Analysis of Inactivated Influenza Vaccine—Examines the cost effectiveness of influenza vaccine.

*Assessment of Technologies for Determining Cancer Risks From the Environment—Examines four major issues: estimates of the percentage of cancer due to environmental exposure, technologies used to test for carcinogenicity, methods used for extrapolating data from animals to humans, and regulatory pathways for controlling carcinogens.

The Implications of Cost-Effectiveness Analysis of Medical Technology—Analyzes the feasibility, implications, and usefulness of cost-effectiveness analysis and cost-benefit analysis in health care decisionmaking.

Forecasts of Physician Supply and Requirements—Analyzes the assumptions, methods, and conclusions of the technologies for forecasting both the need for and supply of physicians by specialty and geographical distribution.

A Review of Selected Federal Vaccine and Immunization Policies Based on Case Studies of Pneumococcal Vaccine—Analyzes Federal policies related to four areas of vaccine and immunization activities.

*Summary available

Selected Topics in Federal Health Statistics—E offers alternatives for their effective managemer Assessing the Efficacy and Safety of Medical 1 ficacy and safety of medical technologies before

ficacy and safety of medical technologies before Policy Implications of the Computed Tomograp

planning, use, and financing arising from the w Policy Implications of Medical Information Syst formation systems.

Cancer Testing Technology and Saccharin—As the carcinogenic potential of chemicals consume Development of Medical Technology: Opportur potential social impacts of emerging medical tec Africa Tomorrow: Issues in Technology, Agric Defines various issues in technology developmen be considered as an effective strategy to assist

Agricultural Postharvest Technology and Marketi methods in identifying priority research areas, t and public policy options.

Diagnosis Related Groups (DRGs) and the Med nical Memorandum—Focuses on the increase in cific emphasis on drugs, devices, and procedur

Scientific Validity of Polygraph Testing: A Re: Presents the results of the OTA review and assess

Quality and Relevance of Research and Relate Memorandum—Reviews the quality and relevan Technology Transfer at the National Institutes c

mation on biomedical R&D and its relationship to medical technology and of assessing that techn **Compensation for Vaccine-Related Injuries: A T** lishing a Federal vaccine injury compensation p

SCIENCE, INFORMATION, AND NATURAL RESO

*Information Technology R&D: Critical Trends a in R&D support and indirectly by tax, antitrust, *Effects of Information Technology on Financial be employed in delivering financial services in tl and alternative structure of the financial services existing technologies.

*Computerized Manufacturing Automation: Emp and the state of R&D in computerized manufacturi tries producing computerized manufacturing equ puterized automation for various categories of ma ment; implications for education and training; a development and use of computerized automatic

*Informational Technology and Its Impact on Am and R&D activity, and the providers and uses o

Computer-Based National Information Systems: T three U.S. information systems: National Crime I and electronic funds transfer.

*Alternatives for a National Computerized Crimin puterized criminal history systems by Federal la *Implications of Electronic Mail and Message \$

*Summary available.

Arid and Semiarid Lands-Focuses on U.S.

er Useful Chemicals—Identifies technological , pharmaceuticals, chemicals, and other as-

luctivity—Examines the effects of presently rce base to sustain high levels of production. base for establishing national, regional, and rate institutions in solving these problems. types and sources of chemical and radioac-

rray of tactics currently used to control agri-

enefits, and costs of open shelf-life dating

I other drugs to promote growth and prevent

is to redirect Federal research toward examn problems of Americans.

oduction—Evaluates alternative methods for s.

apability of the current food grading system

the drug approval process, the history and to accomplish it, and current activities in

) the availability, users, and risks of blood. ibution; identification, isolation, production, on and prevention of blood-transmitted dis-

mation about the nature of firms that manufacnedical devices, and examines present and try and the cost and effectiveness of medical

nines the range of policies to contain Medicare

Vaccine: A Technical Memorandum—Provides d immunization activities.

in Health Care—Analyzes the implications se competition.

ents for and against the National Library of aphic information.

propriateness and validity of existing assessl studies, and consensus exercises.

general issues, such as the state of the art

Examines the cost effectiveness of influenza

he Environment—Examines four major issues: a, technologies used to test for carcinogenicity, gulatory pathways for controlling carcinogens. chnology—Analyzes the feasibility, implicanefit analysis in health care decisionmaking. he assumptions, methods, and conclusions of physicians by specialty and geographical

les Based on Case Studies of Pneumococcal cine and immunization activities. Selected Topics in Federal Health Statistics—Examines data systems used in Federal health programs and offers alternatives for their effective management.

Assessing the Efficacy and Safety of Medical Technologies—Evaluates the need for assessments of the efficacy and safety of medical technologies before they go into widespread use.

Policy Implications of the Computed Tomography (CT) Scanner—Analyzes issues such as efficacy, health planning, use, and financing arising from the widespread adoption of the CT scanner.

Policy Implications of Medical Information Systems—Examines the potential of computer-based medical information systems.

Cancer Testing Technology and Saccharin—Assesses the capacity of current testing methodology to predict the carcinogenic potential of chemicals consumed by humans.

Development of Medical Technology: Opportunities for Assessment—Examines the need for assessing the potential social impacts of emerging medical technologies while they are being developed.

Africa Tomorrow: Issues in Technology, Agriculture, and U.S. Foreign Aid: A Technical Memorandum— Defines various issues in technology development, technology transfer, and technical assistance which could be considered as an effective strategy to assist African countries in enhancing their food production.

Agricultural Postharvest Technology and Marketing Economics Research: A Technical Memorandum—Evaluates methods in identifying priority research areas, the adequacy of present basic and applied research efforts, and public policy options.

Diagnosis Related Groups (DRGs) and the Medicare Program: Implications for Medical Technology: A Technical Memorandum—Focuses on the increase in the use of new and existing medical technologies with specific emphasis on drugs, devices, and procedures.

Scientific Validity of Polygraph Testing: A Research Review and Evaluation: A Technical Memorandum— Presents the results of the OTA review and assessment of scientific evidence on the validity of polygraph testing.

Quality and Relevance of Research and Related Activities at the Gorgas Memorial Laboratory: A Technical Memorandum—Reviews the quality and relevance of activities at the Gorgas Memorial Laboratory.

Technology Transfer at the National Institutes of Health: A Technical Memorandum—Presents general information on biomedical R&D and its relationship to technology transfer, and on the processes of transferring medical technology and of assessing that technology.

Compensation for Vaccine-Related Injuries: A Technical Memorandum—Reviews the pros and cons of establishing a Federal vaccine injury compensation program.

SCIENCE, INFORMATION, AND NATURAL RESOURCES DIVISION

*Information Technology R&D: Critical Trends and Issues—Analyzes Federal policy, both directly by trends in R&D support and indirectly by tax, antitrust, regulatory, copyright, and education policy.

*Effects of Information Technology on Financial Services Systems—Examines technologies that are likely to be employed in delivering financial services in the future; the nature of the services that may be provided; and alternative structure of the financial services industry that may emerge as a result of applying new and existing technologies.

*Computerized Manufacturing Automation: Employment, Education, and the Workplace—Focuses on trends and the state of R&D in computerized manufacturing technologies over this decade; the development of industries producing computerized manufacturing equipment, software, and services; the potential utility of computerized automation for various categories of manufacturing industries that might use it; impacts on employment; implications for education and training; and analyzes the impacts of Federal policy options on the development and use of computerized automation systems in U.S. manufacturing.

*Informational Technology and its Impact on American Education—Identifies and projects relevant technology and R&D activity, and the providers and uses of curricula, and educational technology.

Computer-Based National Information Systems: Technology and Public Policy Issues—Summarizes and analyzes three U.S. information systems: National Crime Information Center of the FBI, electronic message systems, and electronic funds transfer.

*Alternatives for a National Computerized Criminal History System—Assesses the use and operation of computerized criminal history systems by Federal law enforcement agencies.

*Implications of Electronic Mail and Message Systems for the U.S. Postal Service-Evaluates the impact

*Summary available

of electronic message systems (EMS) on operations of the U.S. Postal Service and assesses alternative roles for the Postal Service in provision of EMS and services.

Patent-Term Extension and the Pharmaceutical Industry—Examines the benefits and efficacy of pharmaceutical innovation and research and development.

*Managing the Nation's Commercial High-Level Radioactive Waste—Presents the findings and conclusions of OTA's analysis of Federal policy for the management and disposal of commercial high-level radioactive waste. *Protecting the Nation's Groundwater from Contamination—Provides comprehensive examination of the nature

and extent of groundwater contamination.

*Acid Rain and Transported Air Pollutants: Technology and Public Policy—Examines the potential benefits of acting now to abate long-range transport air pollution and the potential costs of action.

*Wetlands: Their Use and Regulation—Presents the findings and conclusions of OTA's analysis of approaches to wetlands use.

*An Assessment of Maritime Trade and Technology—Traces prevailing conditions and dominant trends that are important to the way the Government assumes its responsibility in developing and implementing policy. *Use of Models for Water Resources Management, Planning, and Policy—Examines the potential for mathematical

models to more effectively and efficiently analyze water resource problems

*Technology and Oceanography: An Assessment of Federal Technologies for Oceanographic Research and Monitoring—Identifies the technologies and management systems that are most effective in researching four areas: weather and climate, marine pollution, undersea mineral exploration, and fisheries.

Transportation of Liquefied Natural Gas—Evaluates the status and trends of ongoing and proposed projects involving the transportation and handling of liquefied natural gas.

Establishing a 200-Mile Fisheries Zone—Evaluates the problems and opportunities presented by the new 200-mile U.S. fishery zone.

Coastal Effects of Offshore Energy Systems—Assesses social, economic, and environmental impacts of three proposed offshore energy systems.

*Airport System Development—Assess the technologies to be applied to increase capacity or improve service at airports and the mechanisms by which the technology can be deployed.

Technology, Innovation, and Regional Economic Development—Identifies and describes the efforts of State and local governments, universities, and private sector groups to promote the creation, explansion, and retention of high-technology firms and industries.

Airport and Air Traffic Control System-Examines the likely future evolution of domestic aviation.

Review of FAA National Airspace System Plan-Critiques the FAA National Airspace System Plan.

Civilian Space Policy and Applications-Explores Federal involvement in space, when and under what circumstances commercial involvement is appropriate.

*Global Models, World Futures, and Public Policy—A Critique—Examines global models as a tool for longrange strategic analysis and policy development.

*Impact of Advanced Air Transport Technology—Examines the impact of introducing or not introducing advanced high-speed aircraft into our future commercial fleet, including air cargo and commuter sectors.

*U.S. Passenger Rail Technologies—Assesses intercity passenger rail technologies, foreign experience with high-speed rail, and the potential impacts of their introduction in the United States.

*Impact of Advanced Group Rapid Transit Technology-Examines second-generation automated guideway transit systems as part of a solution to the need for improved urban mass transit.

Automatic Train Control in Rail Rapid Transit—Assesses technical, operational, planning, and policy issues arising from automated train control.

Changes in the Future Use and Characteristics of the Automobile Transportation System—Describes energy, environmental, safety, and cost impacts of technological changes.

An Evaluation of Railroad Safety-Evaluates trends in railroad-related accidents.

*An Assessment of Technology for Local Development—Assesses several prototype technologies, the local problems they may alleviate, and their feasibility and potential impacts.

Salyut: Soviet Steps Towards Permanent Human Presence in Space: A Technical Memorandum—Examines the major past accomplishments, the current capabilities, and the probable future direction of the Soviet Union's Salyut space station program.

Space Science Research in the United States: A Technical Memorandum-Summarizes and critiques the views of many people interested in space science.

For information on availability and price of these pu

*Summary available

Coal Exports and Port Development: A Technic portant to Federal policy debate: estimating the popolicy, the Federal role in dredging harbors, an Ocean Margin Drilling: A Technical Memorandu effort in marine geology.

Recent Developments in Ocean Thermal Energy mal energy conversion (OTEC) developments oc Postal Service and assesses alternative roles

nes the benefits and efficacy of pharmaceutical

aste—Presents the findings and conclusions sal of commercial high-level radioactive waste. ides comprehensive examination of the nature

ublic Policy—Examines the potential benefits he potential costs of action.

d conclusions of OTA's analysis of approaches

revailing conditions and dominant trends that bility in developing and implementing policy. Policy—Examines the potential for mathematical ce problems

achnologies for Oceanographic Research and hs that are most effective in researching four al exploration, and fisheries.

and trends of ongoing and proposed projects as.

ems and opportunities presented by the new

economic, and environmental impacts of three

pplied to increase capacity or improve service be deployed. —Identifies and describes the efforts of State

-Identifies and describes the efforts of State promote the creation, explansion, and reten-

future evolution of domestic aviation.

FAA National Airspace System Plan. Ivement in space, when and under what cir-

-Examines global models as a tool for long-

impact of introducing or not introducing adcluding air cargo and commuter sectors. ger rail technologies, foreign experience with in the United States.

nes second-generation automated guideway urban mass transit.

ical, operational, planning, and policy issues

le Transportation System—Describes energy, jes.

d-related accidents.

ses several prototype technologies, the local impacts.

Space: A Technical Memorandum—Examines probable future direction of the Soviet Union's

emorandum-Summarizes and critiques the

Coal Exports and Port Development: A Technical Memorandum—Addresses four major issues that are important to Federal policy debate: estimating the potential U.S. coal export market, development of foreign trade policy, the Federal role in dredging harbors, and the outlook for alternative technologies.

Ocean Margin Drilling: A Technical Memorandum—Evaluates a proposed public-private cooperative research effort in marine geology.

Recent Developments in Ocean Thermal Energy: A Technical Memorandum—Reviews status of ocean thermal energy conversion (OTEC) developments occurring after OTA's 1978 report on OTEC.

For information on availability and price of these publications, please call OTA's Publishing Office (202) (224-8996)

Assessments in Progress as of February 1985

Technology and the American Economic Transition Load Management and Generating Technologies for Electric Utilities in the 1990s Technologies for Surface Mine Reclamation on Western Federal Lands Technology and Structural Unemployment: Retraining Adult Displaced Workers Cleanup of Uncontrolled Hazardous Waste Sites Under Superfund International Competition in Services Coal Leasing Amendments of 1976 Strategic Command, Control, Communications, and Intelligence Systems New Ballistic Missile Defense Technologies Technology, Public Policy, and the Changing Structure of American Agriculture Technologies To Maintain Biological Diversity Integrated Renewable Resources Management for U.S. Insular Areas Evaluation of Agent Orange Protocol Preventing Illness and Injury in the Workplace Status of Biomedical Research and Related Technology for Tropical Diseases Medical Technology and Diagnosis-Related Groups: Evaluating Medicare's Prospective Payment System. Technology and Indian Health Care: Effectiveness, Access, and Efficiency Physicians and Medical Technology: Use, Cost, and Payment Methods Technologies for Determining Mutation Frequencies in Human Beings Alternatives to Animal Use in Testing and Experimentation Reproductive Health Hazards in the Workplace Life-Sustaining Technologies and the Elderly Disorders Causing Dementia Information and Communication Technologies and the Office Federal Government Information Technology: Congressional Oversight and Civil Liberties Intellectual Property Rights in an Age of Electronics and Information Technology for Developing Offshore Oil and Gas Resources in Hostile Environments Technologies for Disposing of Waste in the Ocean Hazardous Materials Transportation: Technology Issues Science Policy Special Projects Standardized Testing as a Measurement Tool for Federal Education Policy

(NOTE: For brief descriptions of these studies in progress—see OTA booklet on "Assessment activities"—available from OTA's Publishing Office, 224-8996.)

General Informatio

OTA offices are located at 60

Information on the operation assessments, or a list of availa or calling:

> Congressional and Pu Office of Technology U.S. Congress Washington, DC 205: (202) 226-2115

Publications Available

OTA Annual Report.—Det published during the preceding

List of Publications.—Cat reports with instructions on ho

Press Releases.—Announc and other newsworthy activitie

OTA Brochure. - "What O"

Assessment Activities. under way and recently publisl

Contacts Within OTA

Office of the Director Congressional and Public Affai Energy, Materials, and Internat Health and Life Sciences Divisi Science, Information, and Natu Administration Office Personnel Office

ress 5

ectric Utilities in the 1990s Federal Lands Adult Displaced Workers Superfund

elligence Systems

of American Agriculture

Insular Areas

for Tropical Diseases aluating Medicare's

ess, and Efficiency yment Methods Human Beings ion

Office sional Oversight and Civil

l Information es in Hostile Environments

al Education Policy

ess—see OTA booklet on g Office, 224-8996.)

General Information

OTA offices are located at 600 Pennsylvania Ave., S.E., Washington, DC.

Information on the operation of OTA, the nature and status of ongoing assessments, or a list of available publications may be obtained by writing or calling:

Congressional and Public Affairs Office Office of Technology Assessment U.S. Congress Washington, DC 20510 (202) 226-2115

Publications Available

OTA Annual Report.—Details OTA's activities and summarizes reports published during the preceding year.

List of Publications.—Catalogs by subject area all of OTA's published reports with instructions on how to order them.

Press Releases.—Announces publication of reports, staff appointments, and other newsworthy activities.

OTA Brochure.—"What OTA Is, What OTA Does, How OTA Works."

Assessment Activities.—Contains brief descriptions of assessments under way and recently published reports.

Contacts Within OTA

Office of the Director	224-3695
Congressional and Public Affairs Office	224-9241
Energy, Materials, and International Security Division	226-2253
Health and Life Sciences Division	226-2260
Science, Information, and Natural Resources Division	226-2253
Administration Office	224-8712
Personnel Office	224-8713
Publications	224-8996

 \bigcirc