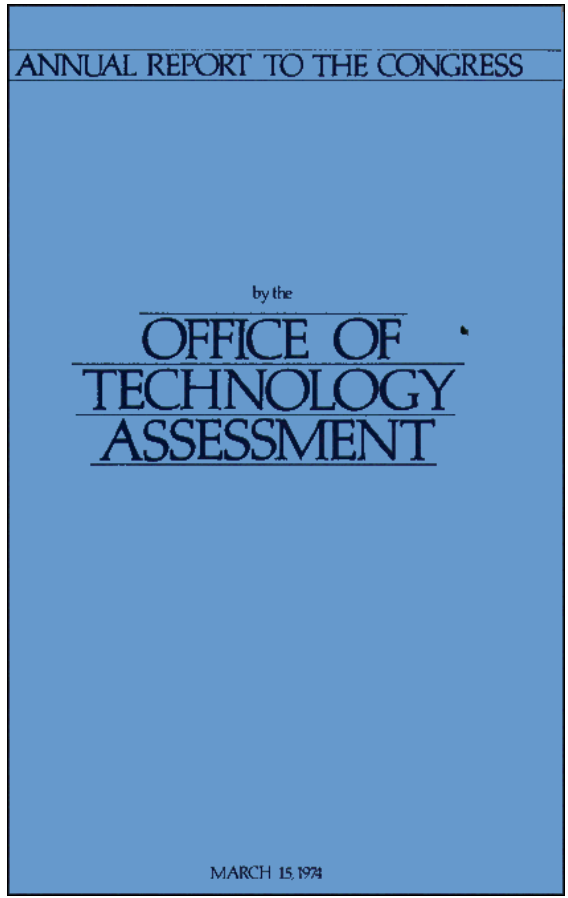
Annual Report to the Congress by the Office of Technology Assessment: March 15, 1974

March 1974



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MARCH 15,1974.

To the Congress of the United States.

DEAR MR. PRESIDENT AND MR. SPEAKER: Pursuant to section II of Public Law 9(2-484, I am pleased to submit herewith the annual report of the Office of Technology Assessment.

Although the Office was established by the Technology Assessment Act of 1972, which was approved on October 13,1972, funds were only recently appropriated for it and, hence, it is just beginning to organize its work. As stated in the Act, the purpose is to equip the Congress "with new and effective means for securing competent, unbiased information concerning the physical, biological, economic, social, and political effects" of technological applications; and to serve as an aid "in the legislative assessment of matters pending before the Congress, particularly in those instances where the Federal Government maybe called upon to consider support for, or management or regulation of, technological applications."

This report is intended to provide the Congress with information on the steps taken thus far by the Office of Technology Assessment, as well as general background information on the development of the Technology Assessment Act.

Sincerely,

EDWARD M. KENNEDY,
Chairman of the Board,
Office of Technology ***Assessment.***

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INTRODUCTION

The Act that created the Office of Technology Assessment (OTA) was signed into law in October 1972, but it was not until November 1973 that funds were available for the operation of the Office. Nevertheless, a very brief report was submitted to the Congress on March 15, 1973, and was published in the Congressional Record. The following report highlights the events that have taken place over the past year, as well as providing general background information.

L BACKGROUND

The Office of Technology Assessment consists of a Congressional Board; a Director, Deputy Director and other employees; and a citizens Advisory Council. The Board consists of six Senators and six Representatives, who are appointed by the Speaker of the House and the President pro tempore of the Senate. The Director of the Office is also a nonvoting member of the Board. The Advisory Council consists of ten private citizens and, in addition, the Director of the Congressional Research Service, Library of Congress, and the Comptroller General of the United States.

Appropriations Activities

The Office was created by the Technology Assessment Act of 1972 (P.L. 92484), and the Board began its activity in the first session of the 93d Congress. At their April meeting in 1973 the Board members discussed a proposed budget for Fiscal Year 1974 (a budget of $3,980,-000 was later recommended to the Senate Appropriations Committee), the nomination of the Director, and a procedure for appointing the public members of the Advisory Council.

The Legislative Branch Appropriation Bill for fiscal year 1974 (H.R. 6691) was passed in the House on April 17,1973, but included no funds for the OTA. However, the House Appropriations Committee noted in its report that the OTA's Board had not been able to complete action on a proposed budget in time for their consideration. Representative John W. Davis elaborated on the statement during floor consideration of the Fiscal Year 1974 appropriations bill:

> We on the Board . . . do wish to point out that a request will be made to include such funding when the bill is in the Senate committee and that funds for OTA are expected to be included in the final act.1

1 Davis, John. FY 1974 Legislative branch appropriations. Remarks in the House. Congressional *Record* [daily edition] Apr. 17, 1973 : H2829–2830.

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In May 1973, the Board submitted a request for $289,000 to the Senate Subcommittee on Legislative Appropriations, during their consideration of Fiscal Year 1973 *supplemental* appropriations (H.R. *7447).* This same amount was reported by the Senate Appropriations Committee, but the requested appropriation was deleted in conference by amendment No. 47 (H. Rept. No. 93-295) to the supplemental bill.

The Senate Committee on Appropriations heard testimony from Senator Kennedy and other members of OTA's Board on May 9 and June 20, 1973. The committee recommended an appropriation of $3,980,000 for fiscal year 1974 in its final report on H.R. 6691 and this amount was included in the Senate passage of the bill on July 19, 1973.

A Committee of Conference was appointed in the following weeks to resolve the differences between the House and Senate versions of H.R. 6691. Their final report was submitted to both Houses on October 11, 1973. Amendment No. 43 in the conference report reduced the appropriation to $2,000,000 for salaries and expenses of the OTA. The conference report was approved by the House and the Senate in the next week, and was signed by the President on November 1, 1973, thus making funds available to the OTA through June 30, 1974.

Legislative History of the Technology Assessment Act

The Act authorizing the creation of the Office of Technology Assessment (P.L. 92484) resulted from a series of bills under Congressional consideration. The first bill was introduced in the House by Rep. Emilio Daddario on March 7, 1967, and was referred to the House Science and Astronautics Committee. Over four years later, on August 16, 1971, this same committee reported H.R.. 10243, the third major bill which evolved from Congressman Daddario's original proposal. H.R. 10243 was taken up and considered by the House on February 8, 1972. After some debate, the bill was amended and passed on a roll call vote (yens-256, nays-118, not voting—57).

The House bill and a companion bill (S. 2302) were considered by the Senate Subcommittee on Computer Services of the Committee on Rules and Administration during their hearings on technology assessment legislation on March 2, 1972. The Senate Committee voted unanimously to report H.R. 10243, with an amendment' in the nature of a substitute, on September 13, 1972. This legislation passed the Senate by unanimous voice vote the next day, and a conference was later scheduled to resolve the differences between the Senate and House versions. Conferees from both Houses met on September 21 and agreed' to an amended version. Both Houses thereafter agreed to the conference report on H.R. 10243, and the President signed the Technology Assessment Act of 1972 on October 13,1972.

Summary of the Act [2]

The Technology Assessment Act of 1972 (P.L. 92-484) establishes an Office of Technology Assessment for the Congress as an aid in the identification and consideration of existing and probable impacts of technological application. The bill also amends the National Science Foundation Act of 1950.

Purpose. The purpose of the legislation is to provide a new and effective means for Congress to secure competent, unbiased information concerning the physical, biological, economic, social, and political effects of the increasingly extensive and larger applications of technology. This information is then to be used as one factor in the decisionmaking process in the legislative branch, particularly in those areas where Congress must manage or regulate technological applications.

As created by the legislation, the office of Technology Assessment is an agency within and responsible to the legislative branch of the Government. Prior to the establishment of OTA, the General Accounting Office was the last legislative office created by Congress; it was established in 1921.

The basic function of the Office is to provide "early indications of the probable beneficial and adverse impacts of the applications of technology and to develop other coordinate information which may assist the Congress." Eight specific activities are listed below which are identified in the legislation as the means to carrying out this function. The Office shall:

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

(2) where possible, ascertain cause-and-effect relationships;

(3) identify alternative technological methods of implementing specific programs;

(4) identify alternative programs for achieving requisite goals;

(5) make estimates and comparisons of the impacts of alternative methods and programs;

(6) present findings of completed analyses to the appropriate legislative authorities;

(7) identify areas where additional research or data collection is required to provide adequate support for the assessments and estimates described above;

(8) undertake such additional associated activities as the appropriate authorities specified below may direct.

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[2] **See Appendix A for the complete text of the Technology Assessment Act.**

Section 3 in the Technology Assessment Act notes that assessments may be undertaken by the Office upon the request initiated by the chairman of any standing, special, select, or joint committee of Congress, acting for himself or at the request of the ranking minority member or a majority of the committee members. The Board itself may initiate assessments, and the Director, in consultation with the Board, also has this authority.

Assessments made by the Office, including all background and supplementary information, shall be made available to the initiating committee or other appropriate committees of the Congress. These supporting studies may also be made available to the public except in those instances where to do so would violate security statutes or the exceptions noted in the Freedom of Information Act (U. S. C., Title 5, section 552(b)).

The Board

The Board, which is responsible for formulating the overall policies of OTA, selects a Chairman and a Vice Chairman from among its members at the beginning of each Congress. Both these officers alternate between the Senate and the House of Representatives with each Congress. During the even-numbered Congresses, the Chairman is selected by the members from the House of Representatives on the Board, and during the odd-numbered Congresses, by the Senate members of the Board. The Vice Chairman during each session is chosen in the same manner, but shall not be from the same House of Congress as the Chairman. The Board has the power to issue subpoenas upon the vote of a majority of its members.

Executive Officers. The officials of the Office of Technology Assessment are defined in section 5 of the legislation. The Director of the Office is the chief executive; he is appointed by the Board for a term of 6 years, unless sooner removed by the Board. He receives basic pay at the rate provided for level III of the Executive Schedule (this is comparable in level to, for example, the Solicitor General of the United States, Under Secretaries of most Cabinet-level Departments, and the Chairmen of the Federal Power and Federal Trade Commissions). The Director has the authority to exercise his statutory powers and duties and may exercise such additional powers and duties as may be delegated to him by the Board. With the approval of the Board. the Director appoints a Deputy Director whose rank is at level IV of the Executive Schedule (this is the equivalent level of Assistant Secretaries of the Departments of the Executive Branch and members of regulatory commissions).

Authority. The Office has the authority, within the limits of available appropriations, to do all things necessary to carry out the provisions of this Act. This authority includes the right to seek advice

from persons and organizations outside the Office, public or private, and to form special ad hoc task forces or other arrangements when appropriate. The Office may enter into contracts or other arrangements with any agency or instrumentality of the United States, with any State, Territory, or possession or any political subdivision thereof. Contracts may also be arranged with any person, firm, association, corporation, or educational institution. These contracts maybe negotiated as necessary for the conduct of the work of the Office.

In carrying out the provisions of this Act, the Office may not itself operate any laboratories, pilot plants, or test facilities. The Office may request and is authorized to secure directly from any executive department or agency information, suggestions, estimates, statistics, and technical assistance for the purpose of carrying out its functions under this Act.

In accordance with such policies as the. Board prescribes, the Director appoints and fixes the compensation of such personnel as may be necessary to carry out the provisions of this Act.

The Advisory Council. The Council, which serves in an advisory capacity to the Office and its Congressional Board, is composed of 12 members, as follows:

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

(2) the Comptroller General; and

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

The term of each nongovernmental Council member is 4 years and no such person will be appointed a member more than twice. The terms of these members are staggered so as to establish a rotating membership according to such method as the Board may devise. These nongovernmental members of the Council are compensated for each day engaged in the actual performance of Council duties at rates of pay not in excess of the basic daily pay rate set forth in the General Schedule of section 5332(a) of title 5, United States Code. They are additionally reimbursed for travel, subsistence and other necessary expenses.

Congressional Research Service, General Accounting Office, and National Science Foundation. Both the Congressional Research Service of the Library of Congress and the General Accounting Office are authorized by the Technology Assessment Act to provide such services and assistance to the Office of Technology Assessment as may

be appropriate and feasible. To carry out these objectives, the Librarian is authorized to establish within the Congressional Research Service such additional divisions or other organizational entities as may be necessary. The assistance of the Congressional Research Service to the Office shall include, but is not limited to, all of the services available to Congress.

The General Accounting Office is authorized to provide OTA with financial and administrative services (including those redated to budgeting, accounting, financial reporting, personnel, and procurement) and such other services as may be appropriate. This assistance includes, but is not limited to, all of the services the General Accounting Office provides to Congress.

Section 10/in the Technology Assessment Act directs a specific liaison function between the Office and the National Science Foundation. This continuing liaison involves: (1) grants and contracts formulated or activated by NSF which are for the purpose of technology assessment; and (2) the promotion of coordination in areas of technology assessment, and the avoidance of unnecessary duplication or overlapping of research activities in the development of technology assessment techniques and programs.

This section further changes the National Science Foundation Act of 1950 as amended (42 U.S.C. 1862(b)). Section 3(b) of the NSF Act is amended to enlarge the authorization of NSF specific scientific activities in matters relating to the effects of scientific applications upon society. Furthermore, the amendment allows the Office of Technology Assessment, as well as any Federal department or agency, to request that the NSF undertake such activities.

Authorization. The Office of Technology Assessment was authorized appropriations not to exceed $5 million m the aggregate for the 2 fiscal years ending June 30, 1973, and June 30, 1974, and such sums thereafter as maybe necessary.

II. PRELIMINARY OTA ACTIVITIES

Following the passage of the FY 1974 Legislative Appropriations Bill in October 1973, the Board proceeded to consider nominations for the Director of the Office. By unanimous vote, Mr. Emilio Q. Daddario, former Congressman from Connecticut and sponsor of the original technology assessment legislation, was appointed Director on November 1, 1973.

The Director then began the preliminary structuring and organization of the Office. On December 5, 1973, the Board unanimously approved the appointment of Dr. Daniel De Simone as the Deputy Di-

rector of OTA. Doctor De Simone had previously served as a White House assistant on science policy matters and was Executive Director of the Federal Council on Science and Technology.

To begin its work, OTA was given invaluable assistance by Mr. Wilbur *Bolton* of the National Science Foundation, who helped to set up OTA's administrative services and its general operations. The National Science Foundation and the Congressional Research Service provided additional professional staff members on loan to OTA during this formative stage. The General Accounting Office also provided accounting services during this time.

Two other major staff appointments were made in January of 1974-Mr. Thomas McGurn, formerly Staff Director of the Subcommittee on Computer Services of the Senate Rules Committee, was named as Administrative Officer, and Mr. Timothy Atkeson, the former General Counsel for the Council on Environmental Quality, was named General Counsel for the OTA. By the time of the House appropriation hearings in March 1974, the OTA staff consisted of 16 people, with the projection of 26 additional positions for the remainder of the 1974 fiscal year. Appendix B lists the employees of OTA as of March 15, 1974.

Meetings of the Board and Advisory Council

Since the formation of the OTA Board in the 93d Congress, it has formally convened nine times. Following its last report to Congress, the Board held meetings on April 10, November 1, and December 5, 1973. In early 1974, the Board met on January 24, February 6, February 20, and March 6.

Senator Edward M. Kennedy, Democrat of Massachusetts, was unanimously elected Chairman of the Board when Congress convened in January 1973, to serve for the duration of the 93d Congress. On April 10, 1973, the Board held its first organizational meeting. Representative Charles A. Mosher, Republican of Ohio, was later elected Vice Chairman.

Early in the second session of the 93d Congress, two changes were made in the Board's membership. Senator Peter H. Dominick resigned from the Board on January 28, 1974, and Senator Ted Stevens was appointed in his place. Representative James Harvey resigned from the Congress to take on new duties as a United States District Judge, and Representative Marvin Esch was appointed to this vacancy on February 27, 1974. The present membership of the Board is listed on page III of this report.

During their December meeting, the Board adopted a resolution governing the selection of the public members of the OTA Advisory

Council. The resolution stated that the Council members would be chosen according to the following guidelines:

(1) A non-partisan Council;

(2) Whose members shall be men and women of exceptional integrity, and outstanding achievement and leadership in their special fields of expertise and interests;

(3) Who shall be widely distributed among the various geographic regions of the Nation; and

(4) Whose collective experience shall include background in (a) the physical, biological, and social sciences; (b) the various areas of engineering; (c) administration of technological activities; (d) the professional fields such as medicine, law, and public administration; (e) the industrial, academic, not-for-profit, and governmental sector of the economy; and (f) community affairs, consumer, environmental, or citizen action and other public interest activities.

The Board then approved a list of nominees for the public member positions on the Advisory Council. The Council members are listed on page III of this report. The Board and the Council held a joint meeting on January 24, 1974. The next meeting of the Council was held on March 12, 1974. Dr. Harold Brown was elected Chairman of the Advisory Council at the first meeting and Dr. Edward Wenk, Jr., was named the Vice Chairman.

Interaction with Congressional Commlttees

In December of 1973 the Chairman of OTA's Board notified the chairmen of all committees of the House and Senate, joint committees, and appropriations subcommittees that OTA was available to help their committees:

CONGRESS OF THE UNITED STATES,
OFFICE OF TECHNOLOGY ASSESSMENT,
Washington, D. C., December 21, 1978.

DEAR MR. CHAIRMAN: The Office of Technology Assessment is in operation and I am writing to advise that in the coming months we will be looking to you for guidance and exploring ways of being of service to you.

Emilio Q. Daddario, who served in the House from 1951 to 1970, is the Director. I am sure that you are familiar with his long and distinguished service, especially his interest in helping to shape science and technology policy. An Advisory Council of 12 outstanding persons from industry, public life, education, and professional groups has been assembled to contribute their expert views to this new Congressional institution and to forge an effective link between those of us in the Congress and many interested sectors of national life.

Working relationships already have been established with the General Accounting Office, the Congressional Research Service of the Library of Congress, and the National Science Foundation. Others are underway. A staff is being recruited, and the Office is currently developing procedures, assessment techniques and establishing the criteria for choosing specific assignments. Lists of

qualified contractors with experience in many of the major technology problem areas are being compiled.

We have been considering possible issues for study and, for this reason, we invite expressions of interest from the chairmen of congressional committees as a starting point in identifying tasks OTA may most usefully pursue. Your comment as to the immediate and most pressing assessment priorities would be most welcome and appreciated.

The nature of the services to be performed by OTA is to develop reliable technical information and evaluations of issues concerning the Congress and, particularly, the congressional committees responsible for recommending legislative action on such issues. Essentially, the OTA is directed toward opportunities and problems of potentially large impact and public concern.

Under the statute establishing the Office of Technology Assessment, assessment activities may be initiated upon request of the chairman of any standing, special, or select committee of either House of the Congress, or by the chairman of any joint committee of the Congress, acting for himself or at the request of the ranking minority member, or a majority of the committee members; or the Technology Assessment Board ; or the Director of the Office of Technology Assessment, in consultation with the Board.

Priorities will have to be established in the selection of projects, consistent with available revenues and the issues of primary concern to the Congress. Moreover, it is essential that in the first phase of OTA's operation, special care be exercised to build competence and experience in this new and largely unfamiliar field of technology assessment.

I and the other Board members are confident that you share the hopes and promises of this new (Congressional institution and, with your support and guidance, it will become a useful and constructive tool to inspire and shape new and productive public policy decisions.

Sincerely,

EDWARD M. KENNEDY,
Chairman, Technology Assessment Board.

III. CONGRESSIONAL REQUESTS FOR ASSESSMENTS

As of March 15, 1974, OTA has received the following requests for assessments from the committees of the Congress:

CONGRESS OF THE UNITED STATES,
COMMITTEE ON THE JUDICIARY,
HOUSE OF REPRESENTATIVES,
Washington, D. C., December 19,1973.

Hon. EMILIO Q. DADDARIO
Director, Office of Technology Assessment,
House of Representatives, Washington, D.C.

DEAR MIM: The Subcommittee on Immigration, Citizenship, and International Law of the Committee on the Judiciary has undertaken a comprehensive review of the operation of the Outer Continental Shelf Lands Act of 1953.

During the course of these hearings the Subcommittee intends to scrutinize the administration of this Act by the Department of the Interior and to determine the social, political, economic and environmental impact of existing offshore oil and gas operations as well as the Administration's proposed plan to "accelerate the leasing of Outer Continental Shelf lands for oil and gas production to a level triple the present annual acreage by 1979".

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In order to assist the Subcommittee, I wish to request a detailed technology assessment of these activities on the outer Continental Shelf. In this regard, I am aware that a technology assessment of Outer Continental Shelf oil and gas operations has already been prepared by the University of Oklahoma under a grant from the National Science Foundation.

In the event additional information is needed concerning this request, please contact the staff of Chairman Eilberg's Subcommittee on Immigration, Citizenship, and International Law.

Kind regards.

Sincerely,

PETER W. RODINO, Jr., ***Chairman.***

U.S. SENATE,
COMMITTEE ON **COMMERCE**,
Washington, D.C., January 14,1974.

Hon. EMILIO Q. DADDARIO,
Director, Office Of Technology Assessment,
Congressional Annex, Washington, D.C.

DEAR MIM: Very shortly. the Committee on Commerce will be undertaking a new examination of United States policy and programs involving the oceans. Senate Resolution 222, which is enclosed, will authorize the Committee to investigate our national commitment to a sound oceans policy and make reports and recommendations to the Senate in a timely manner. In conducting its study, the Committee will be working with six other standing committees of the Senate which share an interest in the oceans.

Now that the Office of Technology Assessment has been funded and begun operation, it can commence planning, organizing and staffing to provide Congress with better and more complete information. The purpose of this letter is to request OTA to examine specific problems in preserving the vitality of the world's oceans while permitting man to avail himself of the sea's riches and pleasures.

For centuries, we have feared and enjoyed, explored and exploited the sea with little concern for our impact on it. But today, that has changed. The world population will approach seven billion by the year 2000. The United States' population will be around 300 million, Thirty states, with more than 75 percent of the nation's population, lie on the coasts of the Atlantic and Pacific Oceans, **the Gulf of Mexico,** and the Great Lakes. The increase in population and the expansion of man's use and abuse of the sea may surpass the environment's toleration level. Therefore, we can no longer continue the thoughtless or individual initiation of new technologies or practices without considering those longer range, interactive and cumulative impacts. This is true in general, but it is a matter **of human survival to** recognize it with respect to the oceans and coastal zones.

Because of this, it is imperative to develop a comprehensive, viable national ocean and coastal zone policy and, secondly, to initiate the requisite technology assessments upon which that policy can be decided.

Some elements of this need are clear. One involves the right of access of all nations to the high seas and protection of their own contiguous areas, the so-called Law of the Sea problem. Another critical area concerns relations among the several levels of government and between public and private interests in the coastal zone. Planned use and protection of both the living and

non-living resources of the seas and estuaries must also be considered in this comprehensive policy. Arrangements for monitoring the global environment for prediction, management and modification purposes must be an integral part of the larger policy along with incentives and procedures for the conduct of research and development and the use of technology at sea and on the shore. For these policies to be meaningful, we must create appropriate international, intergovernmental and public and private organizational and management schemes. Finally, we must strike an acceptable balance of assigning benefits and costs and risks and responsibilities among the parties at interest.

A few ocean-related technology assessments have been completed, including the University of Oklahoma report, *Energy Under the Oceans:* ***A Technology Assessment of Outer Continental Shelf Oil and Gas Operations.*** This study, however, is open to criticism on various levels. Assessments on a very limited basis have occurred on offshore man-made structures, such as airports, and aquaculture (fish farming).

I propose, however, that OTA now undertake the following ocean-oriented assessments to avoid any more crises similar to the one we are now experiencing in energy.

The first crisis prevention assessment ought to be on the technology of offshore oil drilling, production, transportation, and environmental and socio-economic impact upon the oceans, coastal waters and land portions of the affected coastal zones, including State-Federal efforts in coastal zone land use management under the recently enacted National Coastal Zone Management Act (P.L. 92-582). We cannot afford to be stampeded by the energy crisis into an ocean and coastal zone pollution crisis. We should carefully assess the state of the art of existing and expected ocean engineering and operations technology to assure that it will perform the functions required within acceptable environmental risks.

Second, can technology assessment help us avoid a "protein crisis"? It is alarming that a maritime nation such as ours has a trade deficit in our fisheries account reaching $1.3 billion annually. Our present fisheries management practices, our archaic institutional and statutory constraints, on the national as well as local levels, hinder rational and effective fisheries operations. Fishing industry technology demands assessment of almost the opposite type to that normally considered. It is not the exotic and new technology that is of highest concern, but the relics of past generations still in use that need hard-nosed assessment as to effectiveness and the nature of delayed impacts.

Third, I propose that OTA assist the Committee in avoiding a crisis of indecision and inaction with respect to deepwater ports. Although we will still need time to debate the economic, environmental, trade balance and other value-oriented tradeoffs concerting deepwater ports, it would be possible through adequate technology assessment to provide a sound information base for proper political debates, and for well-founded decision making. We should have available to us clear identification of the nature of the various tradeoffs and of the respective impacts of this developing technology.

There are other areas needing technology assessment, but perhaps do not demand the immediacy of the three mentioned above, These include ocean mining for both inshore minerals such as sand and gravel and for offshore minerals such as those available in manganese nodules. Weather modification is an emerging technology with substantial social, economic and legal implications. Aquiculture is now developing for a number of commercially important species, and space technology holds promise of completely revolutionizing our ability to monitor ocean conditions.

On behalf of the Committee, I appreciate very much your attention to these matters of concern to Congress and to the people of the United States.

Sincerely,

ERNEST F. HOLLINGS, Chairman
Subcommittee on Oceans and Atmosphere.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENATIVES
Washington, D. C., January 15, 1974.

Hon. EDWARD M. KENNEDY,
U.S. *Senate,*
Washington, D.C.

DEAR SENATOR KENNEDY: Thank you very much for your recent letter advising me of the activities contemplated by the newly established Office of Technology Assessment. I am delighted to know that my former colleague, Emilio Q. Daddario, will be the director and look forward to working with him in the future.

In the next session of Congress, the Committee on Ways and Means will be working *on* a *number* of subjects of national concern and included will be the problems associated with energy, tax reform, national health insurance and budget control. We will be interested in any information the OTA might develop on these subjects as well as hearing about its activities as they develop.

Sincerely,

HERMAN T. SCHNEEBELI,
Member of *Congress.*

CONGRESS OF THE UNITED STATES,
COMMITTEE ON FOREIGN AFFAIRS,
HOUSE OF REPRESENTATIVES,
Washington, D. C., January 18,1974.

Hon. EDWARD M. KENNEDY,
U.S. Senate,
Washington, D. C'.

DEAR SENATOR KENNEDY : Thank you for your recent letter inquiring about tasks which the new Office of Technology Assessment might pursue which could be of benefit to the Committee on Foreign Affairs.

Since receiving your letter, I have asked the Committee staff to identify areas in which technology assessment might usefully be accomplished from the standpoint of our Committee jurisdiction and interests. Of the suggestions which have been forthcoming, I believe the following represent the principal items:

1. Arms control. As you know, the Congress will be asked within the next few months to make major decisions on several strategic weapons systems. Each system will have its own impact on attempts to achieve some measure of arms control in strategic nuclear weapons, both offensive and defensive. In the past, little has been done to assess the **positive or negative effects which new technology** in strategy weaponry will come to have on opportunities for arms limitations, or on past arms control agreements to which the United States is a party.

2. Food. With food and its distribution becoming an increasingly important issue, OTA could do valuable work in assessing developments in agricultural technology which will affect the production and use of agricultural products on a worldwide basis. Are breakthroughs in agriculture possible which will alleviate, if not solve, **the problem of world** hunger? How can they or existing technology best be implemented?

3. Technology transfer. To many students of development, the transfer of appropriate technology from the developed to the less-developed countries is an essential factor in insuring growth and progress for poor peoples. There remain many questions about such technology transfer. What kinds of technology can best be transmitted in this way? What types of institutions can most effectively achieve this objective'? What can be learned from past experience at making such transfers ?

4. Family planning/population. Rapid population growth threatens to rob the less-developed countries of all hope of progress in national economic growth unless it is checked. The technology of fertility regulation is an important factor in achieving more rational population growth rates. What are the short-term advantages and drawbacks to present technology? What are the likely long-term effects of present programs of fertility control using present technology? Will new scientific developments **which can be foreseen now change the picture significantly ?**

It is my hope that these suggested areas of inquiry will be of **assistance to you as the OTA begins its activities. I am sure that you understand these suggestions do not represent *a*** formal request at this time by the Committee on Foreign Affairs for such studies to be undertaken.

My best wishes to you in your role of leadership for the OTA. I look forward to working with you, former Congressman Daddario, and the Office of Technology Assessment on matters of mutual interest in the days to come.

With best wishes, I am

Sincerely yours,

THOMAS E. MORGN, ***Chairman.***

UNITED STATES SENATE,
Washington, D. C., January 22,1974.

Hon. EMILIO Q. DADDARIO,
Director, Office Of Technology Assessment,
Congressional Annex, Washington, D.C.

DEAR MIM: Formation of the Office of Technology Assessment comes at a most opportune time. A myriad of pressing questions confront the Congress, many of which lend themselves to technology assessment.

The purpose of this letter is to request an OTA assessment of agricultural information systems and their adequacy for agricultural policy planning. We must be assured that our nation has adequate planning mechanisms to deal with the cause and effect relationships of specific actions such as price changes, export sales, varied demand and fuel availability.

For instance, how does all-out production affect land use policy in the various parts of the nation? Should farm credit. policy be changed as a result of a change in production policy? How do these actions affect the price of a loaf of bread?

TOO, often the information that has led to a policy decision has not taken into account the many consequences of that decision-consequences that follow one another like a row of dominoes that falls after the first one is pushed. In view of the current world food supply situation and an impending World Food Conference next fall, in which the United States will play a major role, adequate information for important policy decisions is essential.

I believe that OTA could begin a project which would help Congress draft legislation to **take the guesswork out of the agriculture policy formulation in the United States, and help prepare our government for meaningful contributions toward solving international agricultural problems, such as those to be considered at the World Food Conference.** The specific technology assessment which

I am proposing could be used as the framework for preparation of an agricultural planning model.

Good agricultural planning is dependent first upon the adequacy and accuracy of information retrieval systems. Secondly, it is dependent upon the way such information is analyzed to show how it relates to the entire agricultural system.

I am proposing that OTA assess food and agriculture information gathering and retrieval systems, comparing the current system with practical alternatives. An assessment of the "state of the art" of such systems could tell the Congress whether our policymakers have adequate information on which to base their decisions.

For example, an important new component in agricultural information gathering is the data retrieval resulting from the new ERTS (Earth Resources Technology Satellite) system. An assessment of how best to use this information source is urgently needed.

After an initial assessment of agriculture information systems is made, there are a number of vital elements in the field of agriculture which also can be addressed, either separately or as a whole.

OTA could address itself to an assessment of current fertilizer technology. This conceivably could lead to a recommendation for legislation which would promote the development of fertilizers which would use less petroleum.

Food processing and storage techniques also are vital to modern agriculture. An OTA review of the need for improved technology in methods of grain drying, commodity storage and protein processing for human consumption would be most useful, particularly with regard to nonrefrigeration storage techniques.

An OTA evaluation of the adequacy of farm-to-market roads in this country might lead to a legislative recommendation, Such an assessment could form part of an agricultural planning model.

The possibilities for OTA projects in the agricultural field are limitless. But first, I believe OTA should assess basic problems to lay the groundwork for later, more sophisticated assessments.

This request for an evaluation of the adequacy of agricultural information systems is made with the intention of providing the Congress with information that can help in formulation of intelligent, forward-looking legislation.

Sincerely,

HUBERT H. HUMPHREY.

COMMITTEE ON SCIENCE AND ASTRONAUTICS,
HOUSE OF REPRESENTATIVES,
Washington, D. C., January 22, 1974.

Hon. EMILIO Q. DADDARIO,
Director, Office of Technology Assessment,
House Office Building Annex, Washington, D.C.

DEAR MIM: The schedule which lies ahead for the Committee on Science and Astronautics leads us to believe that the Office of Technology Assessment can be of singular utility in helping resolve some of the problems inherent in that schedule.

Basically, while the assistance that we could use is not limited to these, we would like to emphasize four areas where OTA could be helpful to us. These are as follows:

1. A detailed inquiry into many of the facts surrounding the energy problem which have, to this point, never been carefully delineated.

2. An inquiry into the feasibility of establishing a technological data bank for the Congress.

3. An inquiry into those research and development programs which ought to be undertaken to lessen the critical materials which the United States must now or in the future import in significant quantities.

4. How and what new technology can be developed and applied to help alleviate some of the serious unemployment problems which the Congress is sure to face in years ahead.

Let us go back now and describe in slightly greater detail what kinds of things we have in mind in each of the foregoing categories.

Energy R&D

Several major areas of concern regarding energy must be investigated, each in detail and all of them taken together. For example:

(a) How much energy do we need to maintain or improve our quality of life?

(b) What energy costs can be borne by our **economy without causing** undue disruption?

(c) How much energy can we obtain from present energy sources as a function of time and price?

(d) What future energy sources can be developed and when will they have an effect?

(e) What effects do other resource bases and limitations of peripheral systems have on our energy supply and distribution?

(f) What are the true costs associated with each of the foregoing scenaria ?

Determining the answers to these questions will require meticulous attention to the pervasive nature of the problem. Thorough as the analyses must be by themselves, they will be of value only if they have been carefully coordinated with each other. Needless to say, it would be extremely helpful if, as a result of the outcome of the above studies, relative priorities and funding magnitudes could be assigned to the various options of our research and development effort. A somewhat more detailed description of this part of the request is attached.

Potential Data Bank

In suggesting that OTA take a look at the feasibility of establishing data bank processes and techniques for the Congress, we are in no way implying that this inquiry should impinge upon the very excellent data information systems already in operation under the aegis of the House Administration Committee and the Senate Committee on Rules and Administration. Those activities are devoted largely to legislation per se and to making available to Members and committees, upon short notice, the provisions and status of various bills as they proceed along the legislative route.

What is intended here is a beginning study of the feasibility of establishing a data bank of technological information. This might incorporate not only the state of the art of existing and developing technology but up to date and complete summaries of research underway in new technological areas.

Additionally, it would be helpful to have some indications of where such a repository might be located and by whom operated.

Materials R&D

As you know, this Committee began several preliminary studies into materials in 1972, as a result of which a special report on "Industrial Materials" was issued in December of that year. We now have a follow-on study underway designed to disclose the nature and probable pace of materials research as it is currently proceeding throughout the world. We are receiving assistance in this not only from the Congressional Research Service but from the National Federation of Materials Societies.

Meanwhile, we have the final report of the National Commission on Materials Policy issued in June 1973 as a result of the National Materials Policy Act of 1970. We now also have, issued in December 1973, the report on "Materials Science and Engineering" by a special committee of the National Academy of Sciences. Both of these reports provide excellent preliminary information and background. Moreover, they show conclusively how important the materials R&D issue is, and they point inescapably to the fact that our current fuel crisis is merely an acute symptom of the larger materials-shortage syndrome.

We would like to have the OTA focus particularly on what materials problems are likely to develop in the next five to ten years with regard to those metals, rare earths and other materials on which the United States predictably will have to depend for a substantial part of its needed supply through imports. We would also like to know what magnitude of materials R&D should be launched in the relatively near future in order to alleviate problems of this kind.

Technology-Unemployment

The Technology Assessment Act states that: "The basic function of the Office shall be to provide early indications of the probable ***beneficial*** and adverse impacts of the applications of technology . . ." We think the positive attributes of the Act have been much underplayed to this point, but believe that the OTA can provide considerable guidance in endeavoring to pinpoint how technology—which admittedly is responsible for many of our employment difficulties today, through automation, etc.-can be utilized equally to help provide new markets, new styles of living and new jobs.

We recognize that this kind of a study is necessarily going to involve a good deal of digging and probably a good deal of original thinking in the social sciences.

Nonetheless, we point to the relationship between the space program and its effect on the nation's economy as an example of how a fresh national interest and a willingness to put funding into new technology can be put to excellent use with regard to unemployment. In spite of the slowed funding for the space program, it is significant to note that this effort created a custom built-type market which used many people and consumed very little in the way of precious materials. Something like three-fourths of all the money used in the space program went into salaries and labor costs; probably 20% or more was returned to government—Federal, state and local—in the way of taxes. Most of the balance of labor costs went into the purchase of the necessities of life and helped to keep the economy healthy.

We would be pleased if the OTA would devote some effort, as its program and funding permit, to isolate and describe other areas where technological endeavor can help in the production of jobs without an unnecessarily high consumption of goods.

We recognize that a great deal of work and study has been done by many people, many agencies and many organizations and institutions in the foregoing areas. But it is our impression that, out of the efforts of the so-called "futurists" thus far, very little has materialized in the nature of genuinely helpful guideposts.

Hopefully, the OTA can help alter this trend. Although most of the foregoing requests have long-range implications, they nonetheless offer possibilities for

interim findings and reports which could be of great assistance to this Committee as it proceeds with its program.

Sincerely yours,

OLIN E. TEAGUE,
Chairman.
CHARLES A. MOSHER,
Ranking Minority Member.

CONGRESS of THE UNITED STATES
HOUSE of REPRESENTATIVES,
COMMITTEE ON Public Works,
Washington, ***D.C., January 23, 1974.***

Hon. EMILIO Q. DADDARIO,
Director, Office of Technology Assessment,
HOB Annex, Washington, D.C.

DEAR MIM: I greatly appreciate the time you took today to meet with the professional staff members of the House Committee on Public Works to discuss our interest in OTA assistance to this Committee.

In accordance with that discussion, the Committee will review its priorities for legislative activity, both short term and long term, and will—in the very near future-submit to you a detailed plan of action specifically indicating subjects of interest to this Committee and precise issues and problems on which we would welcome technological and scientific assistance.

For your general guidance, the principal areas of interest are: national public investment policy and population distribution; transportation policy; water resources; and pollution abatement.

We will be in touch with you again as soon as we have a specific outline of our needs and, again, want to thank you for your interest and your splendid cooperation.

With warmest personal regards,
Sincerely,

JOHN A, BLATNIK, ***Chairman,***
Committee on Public Works.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
COMMITTEE on Public Works,
Washington, D.C., January 88,1974.

Hon. Edward M. Kennedy,
U.S. ***Senate,***
Washington, D.C.

Dear SENATOR KENNEDY: Since your December 21 letter, we have been in ***con***tact with the Office of Technology Assessment, and my staff is working closely with Mr. Daddario and his staff. We hope to avail ourselves fully of the uses and operations of 01%

I appreciate very much your interest in this matter.

Sincerely,

JOHN A. BLATNIK, *Chairman,*
Committee on Public Works.

U.S. SENATE
COMMITTEE ON COMMERCE,
Washington, D. C., January 24,1974.

Hon. EDWARD M. KENNEDY,
Chairman, Technology Assessment Board,
Washington, D.C.

DEAR SENATOR KENNEDY: In response to your recent request, I am furnishing you with a list of suggested projects to be undertaken by the Office of Technology Assessment. The first five items on the list are considered to be of priority:

1. Energy Savings in Manufacturing Processes.—Industry utilizes 40% of the total energy in this country. Examples of opportunities for industrial energy conservation are the recent announcements by Aluminum Company of America of a new aluminum refining process that requires 30 percent less electricity than current practices, and by DuPont of new plant procedures which conserve up to 15 percent of total plant energy requirements. DuPont has offered its services to assist other companies to achieve similar savings. A survey of potential energy savings through improved manufacturing processes needs to be performed, including an evaluation of the immediate savings achievable by application of improved plant management procedures and existing technologies, as well as a long term assessment of the potential for major advances in the energy efficiency of manufacturing processes.

2. Safety Problems Posed by Disposal of Nuclear Wastes.—The accelerating nuclear power plant program and particularly the forthcoming fast breeder reactor program raise serious questions of the hazards of disposing of the extremely lethal waste products of such facilities. In view of such dangers, is it wise to continue investing such a high percentage of energy research and development funds in the fast breeder reactor program?

3. Resource Recovery and Energy Recovery Systems. — The **most** frequently mentioned alternative approaches to coping with the solid waste problem focus on the following steps:

(a) Reduction of waste at source.
(b) Recycling and resource recovery.
(c) Energy recovery.

Evaluations of the potential of any specific proposal, particularly in categories (b) and (c), assume that conservation or recovery efforts are not made in earlier phases of product life. For example, estimates for the BTU content of municipal waste usually are based on the assumption that food waste and paper waste have not been separated prior to the energy recovery phase. It is necessary to be able to evaluate various solid waste management proposals which include some or all of the steps outlined above and consider the tradeoffs between these steps.

In addition to an overall study of the solid waste management problem, an assessment of the feasibility of two specific proposals are needed.

The State of Oregon recently introduced a ban on non-returnable beverage containers. An analysis of the Oregon experience and its relevance to possible Federal legislation is needed. Also, a substantial reduction of solid wastes and water quality management problems could be accomplished if a significant portion of household wastes were processed prior to entering the sewers or garbage cans. Some work has been done, particularly in India, on household methane generators. These units, similar to septic tanks, would process food wastes,

human wastes, newspapers, and garden wastes through an anaerobic bacterial action to produce sufficient methane gas for heating water and for cooking. The practicality of installing such units in new houses and retrofitting existing houses needs to be investigated.

4. ***Upgrading of Railroad Tracks. —One*** of the most perplexing problems facing the nation in any attempt to improve rail passenger service is the need to upgrade track and roadbed. Even on the best roadbeds in the country, passenger trains are limited as to speed because of poor track (e.g., Washington to New York, the 170 mph Metroliners cannot travel over 105 mph because of track deterioration).

The Amtrak Improvement Act of 1973 granted the National Railroad Passenger Corporation the power to upgrade tracks. However, if Amtrak spends money to improve a given segment of track, the railroad which owns that segment benefits from those improvements and is able to provide better freight service. Railroads competing with that line suffer what they perceive as a competitive disadvantage provided through what in effect would be a government subsidy. What is needed is a system of cost allocation which would divide the costs for improvements between Amtrak and the railroad whose line is being improved, based upon such factors as train miles, the degree of wear and tear exerted by the various types of rolling stock involved, the benefits to be derived by Amtrak and the railroad, etc. England has been developing a computer model which attempts to allocate wear and tear on a given section of track between freight and passenger trains (at British Rail's research and development centre in Darby, England), but no productive research has been done on this subject in the United States.

5. Crisis of the Oceans.—It is proposed that OTA undertake the following ocean-oriented assessments to avoid any more crises similar to the one we are now experiencing in energy.

The first crisis prevention assessment ought to be on the technology of offshore oil drilling, production, transportation, and environmental and socio-economic impact upon the oceans, coastal waters and land portions of the affected coastal zones, including State-Federal efforts in coastal zone land use management under the recently enacted National Coastal Zone Management Act (P.L. 92-582). We should carefully assess the state of the art of existing and expected ocean engineering and operations technology to assure that it will perform the functions required within acceptable environmental risks.

Secondly, can technology assessment help us avoid a "protein crisis"? **It is** alarming that a maritime nation such as ours has a trade deficit in our fisheries account reaching $1.3 billion annually. Our present fisheries management practices, our archaic institutional and statutory constraints, on the national as well as local levels, hinder rational and effective fisheries operations. Fishing industry technology demands assessment of almost the opposite type to that normally considered. It is not the exotic and new technology that is of highest concern, but the relics of past generations still in use that need hard-nosed assessment as to effectiveness and the nature of delayed impacts.

Third, it is proposed that OTA assist the Committee in avoiding a crisis of indecision and inaction with respect to deepwater ports. Although we will need time to debate the economic, environmental, trade balance and other value-oriented tradeoffs concerning deepwater ports, it would be possible through adequate technology assessment to provide a clear identification of the nature of the various tradeoffs and of the respective impacts of this developing technology.

There are other areas needing technology assessment, but perhaps do not demand the immediacy of those mentioned above. These include:

6. ***Feasibility of Retrofitting Existing Office and Residential Buildings with Energy Conservation Equipment.—***Heating and cooling of buildings requires 22%

of the total energy utilized in this country. Major savings and energy requirements are possible in existing buildings by increasing insulation, installing heat recovery systems, and other modifications. A cost benefit analysis of instituting such a program on a nationwide scale needs to be performed.

7. ***Alternative Energy Sources for Automobiles.-The*** gasoline shortage has intensified interest in alternatives to gasoline as an automobile fuel. The use of methanol as a gasoline additive or gasoline substitute has been proposed. An assessment of the practicality of producing methanol from cellulose or agricultural wastes and establishing a distribution network to gasoline stations needs to be investigated. Also, renewed interest in the electrical automobile for urban driving requires a reevaluation of the technological state of the art. In addition, a cost-benefit analysis is needed of the EPA regulations on lead content in gasoline and other possible lead reduction schemes. As part of this analysis, particular attention should be given to the alternative of removing lead through lead traps installed in cars rather than removing it from gasoline at the manufacturing stage.

8. ***Mutagenic Testing.—We*** need to evaluate whether accelerated testing for mutagenesis, teratogenesis, and carcinogenesis will pay off in terms of consumer safety.

9. ***Detergents.—It*** would be very helpful to update our detergent study to determine which laundry product is best from the standpoint of environmental protection, consumer safety, cost, and effectiveness.

10. ***Predator Poisons.—Much*** needed is a definitive analysis of whether poisons are in fact essential to control predator populations and if so how can they be used so as to increase the selectivity of the poison used. Particularly, is the M-44 device for applying cyanide the best we can do under an interest balancing approach ?

11. ***Pollution and Conservation Taxes.—Can*** we quantify environmental damage and/or the problems caused by shortages of energy and materials so as to form the basis for (1) a pollution, energy, or general severance tax system or (2) a more refined system of environmental or shortage-prevention regulation.

The establishment of OTA heralds in a new era for Congressional involvement in the evaluation of complex technological issues. Best wishes for an extremely innovative and productive year.

Sincerely yours,

WARREN G. MAGNUSON, ***Chairman.***

UNITED STATES SENATE
COMMITTEE ON FINANCE,
Washington, D. C., January 28, 1974.

Hon. EMILIO Q. DADDARIO,
Director, Office of Technology Assessment,
Congressional Hotel, Washington, D.C.

DEAR CONGRESSMAN DADDARIO: Please accept my congratulations on your appointment as Director of the Office of Technology Assessment. I believe that the OTA will become a most valuable arm of the Congress on which we will all come to rely during the coming years.

I would like to propose that OTA consider examining the impact of technology on the future growth and development of the Nation. Such information would be invaluable to the Congress in considering the establishment of a national growth policy.

I am enclosing a copy of my National Growth Policy Planning Act, S. 1286, which discusses the need for a national growth policy. I believe that we will see

an increasing interest in this subject within the next few years as Congress comes to the realization that events such as the energy crisis should be anticipated and avoided if possible.

I recognize that this issue is a rather broad one, but its impact reaches every single American household. I hope that your office will be able to lend its services to the debate on this important topic.

With my best wishes, I am

Sincerely,

VANCE HARTKE,
U.S. *Senator.*

UNITED STATES SENATE,
COMMITTEE ON APPROPRIATIONS,
Washington, D. C., February 15, 1974.

Hon. EDWARD M. KENNEDY,
Chairman, Technology Assessment Board,
House Annex, Washington, D.C.

DEAR MR. CHAIRMAN: On behalf of Senator Robert C. Byrd, Chairman of the Transportation Subcommittee, and Senator Clifford P. Case, the Subcommittee's Ranking Minority Member, I am transmitting the attached technology assessment request to you.

With kindest personal regards, I am

Sincerely,

JOHN L. MCCLELLAN, *Chairman.*

Enclosure.

UNITED STATES SENATE,
Washington, D.C., February 6, 1974.

Hon. JOHN L. MCCLELLAN,
Chairman, Senate Appropriations *Committcc, New Senate Office Building,*
Washington, D.C.

DEAR MR. CHAIRMAN : We would like to enlist your support for a prompt and thorough study *of* automation in federally supported urban rail transit projects.

This matter of increasing concern to our Subcommittee arises because several large cities, including Baltimore and Atlanta, are planning automated train systems and are or will be seeking substantial federal funding within the next two years.

At the same time, serious questions have arisen as to whether and to what degree Automated Train Control (ATC) should be used in rail transit.

The recent experience with San Francisco's new rail transit system, known as BART, has helped focus attention on this problem.

Original plans for 13 ART called for a fully automated system requiring no on-board train operator. This has not worked out because of a series of malfunctions in the ATC system. Costly patch-up work, with substantial federal help, is underway, but complete automation of BART now appears out of the question.

In light of the BART experience we should be alert to see to it that the same expensive mistakes are not made in other federally supported urban rail transit projects involving Automated Train Control.

At present, there is *no* means of assuring that the mistakes made in the BART project will not be repeated.

A draft study just completed by the Department of Transportation's Transportation Systems Center states that train control "typically receives little priority and emphasis" even though-as the study emphasizes—this choice of

system greatly affects revenue, safety, including, we add, the serious matter of crime prevention, and operation. and maintenance costs. The DOT study did not purport to deal with cost and cost savings in detail, but it did state that there seemed to be an "*intuitive conclusion* that an automated system should be more economical than a man-operated system in achieving or surpassing a given level of service or safety."

The Congress and this Committee should not accept an "intuitive" judgment on matters of such cost and complexity.

There are at least two questions that require particular study: (1) to what extent should urban rail transit systems be automated? and (2) how should these projects be planned and executed?

The appropriate body to carry out such an independent, in-depth study for this Committee is Congress' Office of Technology Assessment. Under the provisions of the "Technology Assessment Act of 1972" (P.L. 92-482, Sec. 3(d), (1)), we ask that you transmit to the Chairman of the Technology Assessment Board our request for a study that would:

1. Assess the state of automated train control technology and its application to existing and planned rail transit systems.—What major research is underway and what is its objective? What train control systems are being considered for transit projects now in the planning stage? What are the characteristics of these systems and how are they similar to or different than those of BART and other highly automated systems in use?

2. Assess ***the testing methods by which the workability of automated train projects is*** determined.-To what extent are prototypes built and tested? What has been the lesson of BART and other recent projects concerning the necessity for system testing during development? What provisions have been made for the testing of train control systems now being planned?

3. Assess the process by ***which new rail transit systems or extensions of existing systems are planned and executed; evaluate the adequacy and professionalism of cost, safety, including crime prevention, and other analyses*** used.—What criteria are used, particularly in determining degree of automation ? To what extent are economic tradeoffs (i.e., cost of partially manual vs. fully automated system) explicitly considered? How and to what extent is public oversight maintained throughout the project? What federal requirements, if any, apply to these federally assisted projects?

Your assistance in transmitting this request will be appreciated.

Sincerely,

ROBERT C, BYRD,
Chairman, Transportation Appropriations Subcommittee.

CLIFFORD P. CASE
Ranking Minority Member, Transportation Appropriation Subcommittee.

U.S. HOUSE OF REPRSENTATIVES,
COMMITTEE ON MERCHANT MARINE AND FISHERIES,
Washington, D. C., March 15,1974.

Hon. EDWARD M, KENNEDY,
Chairman, Technology Assessment Board,
Washington, D. C'.

DEAR MR. CHAIRMAN: We have been very interested in the early plans of the Office of Technology Assessment and the fields of inquiry which it proposes to investigate. As you will recall, Vice Chairman Mosher and the Chairman of the House Science and Astronautics Committee directed a letter to Mr. Daddario on

January 22 outlining certain areas of particular interest to the Committee on Science and Astronautics in which assistance was requested. We have been pleased that portions of two of the suggestions submitted, energy and materials, are among the first five that the Board has seen fit to approve.

The purpose of this letter *is* **to express to you a very strong interest which several House Committees have with regard to the development of new and useful technology which could be applied to international shipping. We have discussed this at some length with a number of House Members and we all concur in the importance of this problem.**

We have *gone* through the backup material which the OTA staff provided us with regard to ocean assessments, and while it appears that the description is broad enough to include shipping technology, such a phase is not specifically spelled out.

We are not suggesting that any of the immediate ocean issues which we agreed upon should be altered, retarded or substituted in any way. But we do believe it is highly important that fundamental shipping technology be the subject of an OTA inquiry at the earliest feasible moment.

We would like to point out that this matter would appear to merge extremely well with some of the work which the Office is already beginning—particularly that of energy. And we would like to stress that, since the American shipping industry has declined considerably because of, among other things, its inability to compete with foreign bottoms, the resulting unemployment in what was once a first-rate merchant marine has been very high. In this connection, we would also call your attention to the aforementioned letter of January 22 in which the subject "technology-unemployment" was identified as a major issue. In that letter it was stated that "the OTA can provide considerable guidance in endeavoring to pinpoint how technology . . . can be utilized to help provide new markets . . . and new jobs." We can think of no better example than finding a way to revitalize our shipping industry.

We are not expert enough to suggest all the potential lines of inquiry which might be followed but two examples may help. One is the economic utilization of advanced nuclear technology with regard to ship operation; the other is the possible application of new airfoil technology which a number of marine engi*neers* **believe has significance for new types of fast sailing vessels. With Bunker C fuel selling at an excess of $15 per barrel, it is imperative that consideration be given to developing other means of vessel propulsion. Again, this is not to suggest that either method, or a combination of the two, is the** only potential to be given attention. There are many other possibilities.

We **hope that you will give this serious consideration and keep it in mind as you begin your work in the oceans area.**

Sincerely,

LEONOR K. SULLIVAN,
Chairman, Committee on Merchant Marine and Fisheries.

OLIN E. TEAGUE,
Chairman, Committcc on Science and Astronautics.

IV. INITIAL SELECTION OF ASSESSMENT PROJECTS

In addition to the requests for assessments proposed by congressional committees, comments have been received from executive agencies and public groups on areas of concern which could be candidates for assessment. Recognizing that OTA cannot pursue all the areas which have been proposed, and that certain interrelationships and pri-

orities should be established, OTA's Board selected six major areas of investigation: food, energy, the oceans, materials resources, the bioequivalence of drugs, and urban mass transit.

The Board has also considered several specific projects within each assessment area. For each project approved by the Board, an ad hoc Advisory Panel will be appointed and a small multidisciplinary project team established within OTA. The project team, with the assistance of its Advisory Panel, will supervise all of the work required for the assessment, including review of existing assessments, activities of the Executive Branch, and studies under contract.

Projects under consideration in FY 1974 include the following:

An assessment of the technological issues affecting the Nation% food supply and the adequacy of the present agriculture information systems for sound planning;

An assessment of our present and future utilization of the oil and gas resources of the **U.S.** Outer Continental Shelf;

A project design providing for:

(1) the development of a continuin$_g$ energy assessment capability.

(2) the assessment of specific energy options, such as coal, solar energy, oil shale, and nuclear energy,

(3) the development of an energy information system for congressional committees;

A project design providing a framework for a materials resources information system;

A review of the existing technical capability for determining the bioequivalence of drugs through a contract with an independent group of scientific experts; and

An assessment of urban mass transit systems, with emphasis on automatic train control technology.

All of these projects will be performed by contract with outside groups. After these projects are well underway, OTA plans to further develop its in-house assessment capability.

V. BUDGET

On March 7, 1974, the House Subcommittee on Legislative Appropriations held its first hearing on the Office of Technology Assessment. OTA submitted a request for $5 million for fiscal year 1975, compared to the FY 1974 partial-year budget of $2 million.

The estimated increase of $3 million more than the amount appropriated in FY 1974 resulted primarily from:

annualization of pay and benefits from a partial year in 1974 to a full year cost in 1975 ($1.4 million) ; and provision for added technology assessment effort.

The proposed budget for FY 1975 breaks down roughly as follows:

$3.5 million for assessment contracts, advisory panels and consultants

$1 million for OTA project teams

$500,000 for other OTA operating costs

$5 million total

The total OTA budget and position classification for FY 1974 and 1975 are listed as follows:

[In thousands of dollars]

	1974 estimate	1975 estimate	Change 1974 to 1975
Personnel compensation:			
Permanent positions	$413	$1,441	+$1,028
Positions other than permanent	100	323	+223
Total personnel compensation	513	1,764	+1,251
Personnel benefits: Civilian employees	35	160	+125
Travel and transportation of persons	193	450	+257
Transportation of things	5	8	+3
Rent, communications, and utilities	12	20	+8
Printing and reproduction	27	50	+23
Other services	1,105	2,500	+1,395
Supplies and materials	10	18	+8
Equipment	100	30	−70
Total obligations	2,000	5,000	+3,000

Note: An explanation of our fund requirements by object classification follows:

Permanent Positions.—This estimate covers the salary costs for 68 permanent positions in fiscal year 1975. The increase shown for this object provides for our first full year of operation, with details concerning positions shown below.

PERMANENT POSITIONS

Area	Number of positions [1]	
	Fiscal year 1974	Fiscal year 1975
Office of director	7	9
Program operations	31	50
Administrative support	4	9
Total	[2] 42	[3] 68

1 Estimated as of June 30.
2 includes 29 professional and 13 secretarial technical support positions.
3 Includes 49 professional and 19 secretarial technical support positions.

APPENDICES

A. The Technology Assessment Act of 1972 (P.L. 92-484)
B. Listing of OTA Staff Members as of March 15, 1974.

APPENDIX A

TECHNOLOGY ASSESSMENT ACT OF 1972

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

An Act

86 STAT. 797

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

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

FINDINGS AND DECLARATION OF PURPOSE

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

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

(1) large and growing in scale; and

(2) increasingly extensive, pervasive, and critical in their impact, beneficial and adverse, on the natural and social environment.

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

(c) The Congress further finds that:

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

(2) the present mechanisms of the Congress do not and are not designed to provide the legislative branch with such information.

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

(1) equip itself with new and effective means for securing competent, unbiased information concerning the physical, biological, economic, social, and political effects of such applications; and

(2) utilize this information, whenever appropriate, as one factor in the legislative assessment of matters pending before the Congress, particularly in those instances where the Federal Government may be called upon to consider support for, or management or regulation of, technological applications.

ESTABLISHMENT OF THE OFFICE OF TECHNOLOGY ASSESSMENT

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

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

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

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

(2) where possible, ascertain cause-and-effect relationships;

(3) identify alternative technological methods of implementing specific programs;

(4) identify alternative programs for achieving requisite goals;

(5) make estimates and comparisons of the impacts of alternative methods and programs;

(6) present findings of completed analyses to the appropriate legislative authorities;

(7) identify areas where additional research or data collection is required to provide adequate support for the assessments and estimates described in paragraph (1) through (5) of this subsection; and

(8) undertake such additional associated activities as the appropriate authorities specified under subsection (d) may direct.

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

(1) the chairman of any standing, special, or select committee of either House of the Congress, or of any joint committee of the Congress, acting for himself or at the request of the ranking minority member or a majority of the committee members;

(2) the Board; or

(3) the Director, in consultation with the Board.

Information, availability.

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

(1) to do so would violate security statutes; or

(2) the Board considers it necessary or advisable to withhold such information in accordance with one or more of the numbered paragraphs in section 552(b) of title 5, United States Code.

81 Stat. 54.

TECHNOLOGY ASSESSMENT BOARD

Membership.

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

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

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

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

Vacancies.

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

Chairman and vice chairman.

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

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

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

DIRECTOR AND DEPUTY DIRECTOR

SEC. 5. (a) The Director of the Office of Technology Assessment shall be appointed by the Board and shall serve for a term of six years unless sooner removed by the Board. He shall receive basic pay at the rate provided for level III of the Executive Schedule under section 5314 of title 5, United States Code. Appointment. Compensation. 83 Stat. 863.

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

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

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

AUTHORITY OF THE OFFICE

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

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

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

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

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

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

80 Stat. 499; 83 Stat. 190.

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

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

Recordkeeping.

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

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

Agency cooperation.

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

Personnal detail.

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

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

ESTABLISHMENT OF THE TECHNOLOGY ASSESSMENT ADVISORY COUNCIL

Membership.

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

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

(2) the Comptroller General; and

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

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

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

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

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

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

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

(e)(1) The members of the Council other than those appointed under subsection (a)(1) shall receive no pay for their services as members of the Council, but shall be allowed necessary travel expenses (or, in the alternative, mileage for use of privately owned vehicles and a per diem in lieu of subsistence at not to exceed the rate prescribed in sections 5702 and 5704 of title 5, United States Code), and other necessary expenses incurred by them in the performance of duties vested in the Council, without regard to the provisions of subchapter 1 of chapter 57 and section 5731 of title 5, United States Code, and regulations promulgated thereunder. Travel expenses. 80 Stat. 498; 83 Stat. 190. 5 USC 5701.

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

UTILIZATION OF THE LIBRARY OF CONGRESS

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

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

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

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

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

UTILIZATION OF THE GENERAL ACCOUNTING OFFICE

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

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

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

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

COORDINATION WITH THE NATIONAL SCIENCE FOUNDATION

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

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

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

Scientific programs, financing.

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

82 Stat. 360.

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

84 Stat. 1563; 82 Stat. 365. 42 USC 1873.

ANNUAL REPORT

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

APPROPRIATIONS

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

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

Approved October 13, 1972.

LEGISLATIVE HISTORY:

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

APPENDIX B

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U. S. GOVERNMENT PRINTING OFFICE : 1974 0- 34-668