Priorities and Strategies for Improving **U.S.** Government Foresight

Contents

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Introduction

Numerous proposals for improving Government foresight have been put forward, both in the past and in response to the Global 2000 Report. [1] Some have been modest and limited, others sweeping; some would require major legislation from Congress, while others could be encouraged through oversight or carried out through executive order or agency initiative. The following discussion presents the most frequent and representative proposals, which generally reflect four fundamental priorities:

* correct the existing deficiencies in Government models, as identified by Global 2000 and other assessments;
* coordinate the Government's current predictive capability and activities;
* support technical improvements in the current capability and advance the state of the art; and
* link the Government's foresight capability with its policymaking and management activities.

These priorities and the various strategies for carrying them out do not represent "options" in the normal sense of the term. They are complementary and mutually reinforcing parts of a larger, integrated effort to make the Government's foresight capabilities more reliable, more coordinated, and more useful to both analysts and policymakers.

[1] See especially Dennis L. Little, et al., Long-Range *Planning* **(Washington, D. C.: U.S.** Library of Congress Congressional Research Service, 1976), prepared for the Subcommittee on the Environment and the Atmosphere of the House Committee on Science and Technology, pp. **384-390;** John M. Richardson, Jr., "Towards Effective Foresight in the United States Government" (prepared for the U.S. Department of State, June 1979), pp. 5-6 and app. C; Arthur D. Little, Inc., *Long-Range Forecasting Models of Population, Natural* Resources, and *the Environment Their Use in* F o r e i g n *Policy Assessments at the National Level* (prepared for the U.S. Department of State, Nov. 1979), PP. II.2-3; and *Global Future* Tune *to Act*

ACTION 1. —Correct the Existing Deficiencies Identified by Global 2000 and Other Assessments

Global 2000's authors, reviewers, and critics have identified numerous deficiencies in each of its component submodels, many of which are noted in chapter 2 and the appendixes to this report. The followup report by the interagency Task Group on Data and Modeling Capability identified the correction of these existing deficiencies as the first priority in improving the Government's ability to analyze and address global problems. [2] This action could be taken as a matter of course by individual agencies, many of which are already planning or carrying out evaluations and modifi-

[2] "Report of the Global 2000 Task Group on Data and Modeling Capability," prepared for the President's Task Force on Global Resources and Environment, Nov. 7, 1980.

cations of their present capabilities. However, such actions might be given higher priority, higher level attention, and greater coherence by the agencies if they were encouraged by a presidential directive and/or congressional oversight.

The Department of Energy's (DOE) Energy Information Agency has institutionalized this evaluative function in its Office of Energy and Information Validation, which might provide a model for other agencies. Another possible strategy for carrying out this priority would be the creation of high-level advisory committees within each of the relevant agencies. The functions of these agency advisory committees might include the following:

- prepare an inventory of existing models and data bases, including the purposes for which they were originally developed and the uses to which they are currently put, with particular attention to their scope, complexity, and assumptions;
- identify existing deficiencies and evaluate any plans to modify existing models or obtain new models, preferably through independent assessment by outsiders;
- evaluate current and potential applications of models and projections by agency analysts, planners, and policy makers, with particular attention to the specific information needs of potential users;

- encourage expanded use of models and projections through educational and training programs for agency personnel;
- improve communication between those who use models and those who develop or maintain them, with particular attention to increasing the relevance and responsiveness of model outputs to the needs of potential users; and
- identify likely future problems and issues within the agency's area of responsibility and interest, with the goal of developing problem-oriented and policy-relevant models and data bases.

ACTION 2.—Coordinate the Government's Current Modeling Capabilities and Activities

While the creation of agency advisory committees might be a useful and necessary foundation for improving the Government's foresight capability, it fails to address the equally important problem of linking and coordinating these agency capabilities, which currently focus on relatively narrow, mission-oriented sectoral concerns. Problem-oriented models would most appropriately be developed by the agencies that would use them, but overall analysis and policymaking would require consistent, integrated forecasts that incorporate data and projections from several agencies. Global 2000 shows that it is in this area that current Government efforts have been most unsuccessful: the delays in completing the study itself were caused in part by problems involving computer compatibility and tape transfer.

The simplest strategy for carrying out this action would be a process of interagency negotiation and arbitration to bring about greater consistency and compatibility between the separate agencies' data bases, assumptions, and projections. Ultimately, however, the effectiveness of such a process might require the creation of an interagency task force to provide a focal point and to resolve conflicts. The coordinating functions of such a task force might include the following:

- prepare an inventory of models and data bases currently maintained by individual agencies (including their respective strengths and weaknesses), and identify any areas of compatibility, overlap, or redundancy;
- identify gaps, sources of inconsistency, and points of conflict among existing agency capabilities and suggest possible solutions;
- promote greater understanding,. communication, and technical cooperation among agencies (simply getting the Government's modelers together was one of the Global 2000 study's major accomplishments);
- review and coordinate agency plans to modify or obtain new models or data bases, in order to prevent redundancy, ensure greater compatibility, and identify software or hardware needs;
- develop consistent procedures and protocols for data collection, standards of reliability, and validation, as well as for model documentation and validation;
- establish a central clearinghouse to provide information on the location of models and data bases and to permit easier access. exchange, and integration of data, assumptions, and projections;

. identify key future problems and issues, designate lead agencies to gather information and monitor trends in each area, and ensure the publication of timely projections; and

● link existing models, such as the World Inte-grated Model (WIM) maintained by the Joint Chiefs of Staff and other agencies, the Grain-Oilseed-Livestock model maintained by the Department of Agriculture, and the IEES/ LEAP models maintained by DOE.

ACTION 3.—Support Technical Improvements in the Current Capability and Advance the State of the Art

Technical coordination among agencies and between the executive and legislative branches would eventually require some form of third-party mediation. Creation of an institutional mechanism for this purpose would also present an opportunity for carrying out research and development aimed at technical improvements in existing agency capabilities, the Government's capability as a whole, and the state of the art in global modeling generally. To carry out these functions, however, this institutional mechanism would have to be insulated from the day-to-day concerns of the line agencies and, thus, able to take a long-term view and incorporate broader and more diverse perspectives. Because its mission would be only indirectly linked to policy-related concerns, however, it would seem that such an organization should be created only in conjunction with other initiatives that are directly relevant to policy development and coordination (see action 4). Technical improvements are nevertheless a necessary prelude to policy applications,

Several strategies have been suggested for carrying out this priority. In the short term, an ad hoc commission or research advisory panel might be appointed to identify key technical problems and establish research priorities. To be effective, however, such an effort would have to be both open and ongoing. A frequently encountered proposal for the long term is the creation of a "hybrid" or "quasi-public" institute devoted to long-range analysis, global modeling, and futures research.

The primary goal of such an institute would be to encourage private-sector understanding of, support for, and participation in Government foresight activities. Specific functions might include the following:

● solicit the thoughts and enlist the creative talents of the private sector, particularly the business and educational communities, to "cross-fertilize" Government ideas and initiatives;

● support research b$_y$ nongovernmental organizations to create and/or improve global models and other analytic tools, especially those based on paradigms other than economics;

● encourage impartial, third-party validation and assessment of existing or proposed Government models;

● establish a "global modeling forum, " patterned on the Energy Modeling Forum, at which modelers could exchange ideas and critique one another's work;

● assess work done outside the Government or outside the United States and, where appropriate, suggest its incorporation into the Government's capability;

● support data-gathering efforts and the development of needed data-gathering technologies and systems; and

● establish and maintain communication with similar organizations in other countries through such organizations as the International Institute of Applied Systems Analysis.

ACTION 4.—Link the Government's Foresight Capability With Its Policymaking and Management Activities

The above-described institute, although it could help to broaden the dialog on global problems and advance the state of the art in global modeling, could not by itself ensure that these concerns would be translated into coordinated Federal policy. If the U.S. Government is at present giving insufficient attention to long-range global problems, it could be in part because no single agency has the mandate or the ability to look at these problems on an integrated, ongoing basis. A final priority, therefore, might be to create an institutional focus that could coordinate the various elements of the Government's foresight capability and ensure that long-range global concerns and national priorities are routinely taken into consideration in the formulation, selection, and implementation of U.S. policy at all levels.

In Congress, this would require continuing efforts to ensure that legislative proposals are evaluated in terms of their long-term global impacts and implications. One rationale for such evaluation might be provided by House Rule X, which directs in part that each standing committee (other than Budget and Appropriations):

> , . . shall review and study any conditions or circumstances which may indicate the necessity or desirability of enacting new legislation within the jurisdiction of that committee . . . and shall on a continuing basis undertake futures research and forecasting on matters within the jurisdiction of that committee (2(b)(l)).

The long-range analytic capabilities of the legislative support agencies might also be coordinated and brought to bear on such issues. In addition, Congress might also encourage appropriate initiatives in the executive branch through oversight hearings, personal appeals, or directed research. For example, several committees have already held or plan to hold hearings on long-range demographic issues, Global 2000, and Government foresight. In addition, Sen. Charles McC. Mathias has written a letter to the President, cosigned by 84 other Members, strongly urging that he give the

Global Future: Time to Act report his thoughtful consideration and that he "put into motion the machinery that will translate these recommendations into action. "[3] Another example is the request by the Technology Assessment Board for this OTA study.

Proposals for creating an institutional focus for long-range global policymaking in the executive branch usually suggest that–to ensure support from and access to high-level decisionmakers—it should be located in the Executive Office of the President (EOP). The current administration has

[3]Sen. Charles McC. Mathias, letter to the President, June 22, 1981. This letter, initiated by Senator Mathias and sponsored by Senator Dodd and Representatives Udall, Conte, and Schneider, was signed by the following Members of the House and Senate:

Sen. Charles McC. Mathias, Jr.	Rep. Howard Wolpe
Sen. Christopher J. Dodd	Rep. Jerry M. Patterson
Rep. Morris K. Udall	Rep. Harold C. Hollenbeck
Rep. Silvio O. Conte	Rep. Stephen J. Solarz
Rep. Claudine C. Schneider	Rep. Mike Lowry
Sen. Charles H. Percy	Rep. M. Caldwell Butler
Sen. Mark O. Hatfield	Rep. Barbara A. Mikulski
Sen. Alan Cranston	Rep. Bill Frenzel
Sen. Dale Bumpers	Rep. Fortney H. Stark
Sen. Claiborne Pell	Rep. Thomas A. Daschle
Sen. Lowell Weicker	Rep. Lawrence J. DeNardis
Sen. Carl Levin	Rep. Frank Horton
Sen. George Mitchell	Rep. Leon E. Panetta
Sen. Robert Stafford	Rep. Claude Pepper
Sen. Paul Tsongas	Rep. Bruce F. Vento
Sen. Harrison Williams	Rep. Cooper Evans
Sen. Paul S. Sarbanes	Rep. Les AuCoin
Sen. Thomas F. Eagleton	Rep. Berkeley Bedell
Sen. Edward M. Kennedy	Rep. John LaFalce
Sen. Spark M. Matsunaga	Rep. James M. Jeffords
Sen. John C. Danforth	Rep. Vic Fazio
Sen. Daniel K. Inouye	Rep. Richard L. Ottinger
Sen. William C. Cohen	Rep. Donald Pease
Rep. Barney Frank	Rep. George E. Brown, Jr.
Rep. James H. Scheuer	Rep. Thomas J. Tauke
Rep. Timothy E. Wirth	Rep. Jonathan B. Bingham
Rep. Sam Gejdenson	Rep. Matthew F. McHugh
Rep. Richard A. Gephardt	Rep. Patricia Schroeder
Rep. John Conyers, Jr.	Rep. James Weaver
Rep. Paul McCloskey	Rep. Bob Edgar
Sen. Don Riegle	Rep. William R. Ratchford
Sen. John H. Chaffee	Rep. Ron Wyden
Sen. Max Baucus	Rep. Norman Y. Mineta
Sen. Walter D. Huddleston	Rep. Nicholas Mavroules
Sen. Dan Quayle	Rep. Dante B. Fascell
Rep. Millicent Fenwick	Rep. William Lehman
Rep. Gerry E. Studds	Rep. Philip R. Sharp
Rep. Wyche Fowler, Jr.	Rep. James L. Oberstar
Rep. Albert Gore, Jr.	Rep. Charles E. Schumer
Rep. Anthony C. Beilenson	Rep. Edward J. Markey
Rep. Baltasar Corrada	Rep. Shirley Chisholm
Rep. Anthony Toby Moffett	Rep. George W. Crockett, Jr.
Rep. Edwin B. Forsythe	

apparently taken a step in this direction by creating a new "national indicator system" directed by a special assistant to the President. He describes the project as "a system for providing social and demographic information to the policy people in a systematic and regular way, in advance of policy debates, " in order to give high-level policy makers "a view of [the] changing world" and a sense of how "everything has its cross-impacts on everything else in society. "⁴The system, which will lead to twice-monthly briefings for the President, Vice-President, Cabinet, and senior EOP staff, will focus primarily on national trends but will also examine international trends if there is an obvious connection or a special request from the "long-range policy group" that previews the briefings.

Other proposals for structuring and housing an EOP foresight capability have included the following options:

- Create a new office in EOP devoted exclusively to long-range global issues.—Such an entity would give the issues greatest emphasis, ensure access to the President, avoid competing responsibilities, and facilitate coordination of agency capabilities and activities.
- Assign responsibility for these issues to an existing EOP office.—This would avoid the need to create a new EOP unit. Several existing offices (e.g., the Office of Management and Budget, National Security Council, or Council on Environmental Quality (CEQ)) have analogous or complementary missions and expertise, and CEQ has already begun planning a followup to the Global 2000 study. Additional staff and resources would have to be made available, and there is a possibility that long-range global issues might not receive full attention because of the unit's existing functions and responsibilities.
- Create an interagency coordinating committee on long-range global issues.—Such a committee might be chaired by the Vice President (in conjunction with his current duties as chairman of the Crisis Management Team) or by the head of an existing EOP unit, but even

with a staff of its own it would probably be less efficient and less effective than a dedicated office.
- Assign responsibility for policy develop" ment on long-range global issues to a Special Assistant to the President.—Such an individual, with the help of a small staff, could have access to the President and could ensure a somewhat better degree of interagency coordination, but this office would have to depend, in turn, on modeling and analytic expertise from other sources.

The functions and objectives that have been suggested for this new EOP office include the initiation, supervision, and coordination of all of the functions outlined for the preceding priorities, plus the following:

- ensure that the President and other top-level decisionmakers are presented with the best possible analyses and broadest possible range of policy options on long-range global issues;
- use global models (in combination with other analytic techniques) to determine the effect of various agency goals and budget items on long-range global trends and strategic interests;
- encourage an open and vigorous national dialogue on long-range global problems and issues, with the goal of developing a clear definition of U.S. national goals and strategic interests in these areas;
- prepare a "policy statement on the future," to be presented by the President, as a means of focusing attention and forcing action on long-range global issues;
- issue periodic reports, similar to an executive agency's annual report to Congress, on major global issues and, at longer intervals, conduct comprehensive, integrated studies of long-range global trends and problems;
- issue periodic reports on the state of the art in global modeling and the state of the Government's foresight capability; and
- in conjunction with the Department of State, encourage similar assessments of long-range issues by foreign governments and cooperate in the data-gathering and analytic activities of the various international organizations.

⁴Richard Flea], Special Assistant to the President and director of planning and evaluation; quoted by Philip J. Hilts, "White House Uses Social Sciences But Cuts Funding for Research," *Washington Post*, June 29, 1981, p. A8.