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Global Warming 1991 [3]

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Withdrawal/Redaction Sheet

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Doc. No. / Type	Subject/Title	Date	Restriction	Classification
01. Memo	From Roger Porter to John Sununu Re: Second World Climate Conference (2 pp.)	11/5/91	P-5	
02. Memo	From J. Thomas Ratchford to D. Allan Bromley Re: POTUS Trip to Mexico and Latin America (3 pp.)	10/31/90	(b)(1)	
03. Memo	From D. Allan Bromley to John Sununu Re: Second World Climate Conference (2 pp.)	11/5/90	(b)(1)	
04. Memo	From Teresa Gorman to Roger Porter Re: Follow-up Meeting on Negotiation Strategy on Global Climate Change (3 pp.)	1/23/91	(b)(1)	
05a. Cable	From Secretary of State to All Diplomatic Posts Re: Opening Session of Negotiations on a Framework Convention on Climate Change (2 pp.)	1/15/91	(b)(1)	
05b. Report	Appendix A: Country Targets and Timetables (4 pp.)	n.d.	(b)(1)	
06. Memo	From D. Allan Bromley to POTUS Re: Global Climate Change Status Report (3 pp.)	12/21/90	P-5	

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THE WHITE HOUSE

WASHINGTON

December 13, 1990

MEMORANDUM FOR GOVERNOR SUNUNU

FROM:

D. ALLAN BROMLEY 

SUBJECT:

Global Change Strategy Task Force Meeting

The Global Change Strategy Task Force met on Thursday, December 6. As you know I was in South America last week so Mike Deland, Vice Chairman of the Task Force, chaired the meeting in my absence. As the February Framework Convention will soon be upon us, I felt it was important to continue our work on preparations for those negotiations. To that end, Department of State provided a briefing on progress of the PCC Working Group on Climate Change Subgroup activities, Council of Economic Advisors presented an update on recent work on the economics of global change, and Department of Energy gave a brief summary on the National Energy Strategy in the context of the Framework Convention. Agenda attached in Tab A.

Update on Preparations for the Framework Convention on Climate Change

Bob Reinstein (DOS) discussed the various analyses which are presently underway by the PCC Working Group on Climate Change Subgroups on seven major areas of concern which are expected to be part of the Framework Convention. The areas include: identification of new "insurance" measures; economic analyses; the comprehensive approach; science, research, and monitoring; developing country issues; future IPCC work; and verification, monitoring, and compliance. A work schedule has been developed for completion of these tasks and that schedule is attached for your reference. (Tab B)

Recent Work on the Economics of Global Change

Dick Schmalensee and Howard Gruenspecht (CEA) provided an update of some interesting recent work on the economics of global change including recommendations of the Ad Hoc Group on Economics Research Related to Global Environmental Change. While economic activity is key in the inputs, impacts, and consequences of global change processes, research on economics has not been a major component of the global change research program. After the White House Conference, OMB asked CEES to convene this ad hoc group of economics experts to recommend a research agenda and to identify resource levels and organizational changes required to support expanded research on the economics of global change. The Executive Summary and Section I of their report are included in Tab C for your information and reference.

CEA also provided a summary of their preparations for the US/EC joint meeting in January on comparison of assumptions and information used in determining economic costs of global warming and responses to it. The list of papers collected by CEA to send in their first package to the EC are in Tab D.

The National Energy Strategy in the Context of the Framework Convention

Mark Kerrigan (DOE) gave a brief presentation on status of the NES as well as on the role of the National Energy Strategy in the Framework Convention. He discussed some of the proposed options which result in reductions of CO₂, options as additional "insurance" policy measures, and the impact of the anticipated release date of NES on possible use of the document at the first negotiating session. (DOE handouts, Tab E)

Outstanding Issues

There will be a meeting on December 18 where we will address several outstanding issues. Department of State will present a position paper on U.S. Head of Delegation and Negotiator for the meeting in February. State is also preparing an issues paper for consideration by the task group which will, using the Legal Measures Paper prepared for the RSWG, identify the top five or so major issues, list the current U.S. position on each, and list other countries' anticipated positions on each issue. DOS will provide us with a paper for the next meeting which outlines their positions on these.

THE WHITE HOUSE
WASHINGTON

GLOBAL CHANGE STRATEGY TASK FORCE

AGENDA

December 6, 1990

1. First Negotiating Session of the Framework Convention on Climate Change
 - o PCC Working Group on Climate Change Subgroup Report
2. Economics Task Groups on Global Change
 - o Ad Hoc Group on Economics Research Related to Global Environmental Change
 - o US/EC Meeting, January 1991
3. The National Energy Strategy and the Framework Convention

FRAMEWORK CONVENTION ON CLIMATE CHANGE

Work Schedule

<u>Item</u>	<u>Action</u>	<u>Due Date</u>
1) <u>Climate Action Plan</u>		
a) Identification of measures justified on other grounds which have significant GHG benefits, and quantification of effects.	DOS, DOE EPA, USDA DOC	Jan. 16
2) <u>Economic Analyses/feasibility</u>		
a) Feasibility and effectiveness/economic consequences of various response targets and strategies.	DOE, EPA, OMB, CEA DOC	First Report Jan. 16, Full Report by July
b) Develop necessary analyses to demonstrate advantageous use of market mechanisms.	TFCA	May
3) <u>Comprehensive Approach</u>		
a) Conceptual definitions and elements for building comprehensive approach language in convention.	TFCA	July
b) Detailed explanation of a comprehensive approach.	TFCA	Jan. 16
c) Zingers/crisp retorts to piecemeal approaches.	TFCA	Jan. 16
d) Implementation plan, including institutional requirements for comprehensive approach.	TFCA	July
e) Quantitative analysis of comprehensive approach and alternatives.	TFCA	May
4) <u>Science, Research, Monitoring</u>		
a) Identify needs for and approaches to research and monitoring, including the exchange of scientific and economic information on climate change.	CEES	Jan. 16

- | | | |
|---|-----------|-----|
| b) Identify needs for and approaches to funding of research and monitoring, including dedicated funds and institutional arrangements for funding. | DOS, CEES | May |
|---|-----------|-----|

5) LDC Issues

- | | | |
|---|---|---------|
| a) Analyze options for differentiated obligations for developing countries. | DOS, Treas | Jan. 16 |
| b) Assess existing financial and technical assistance/institutions/mechanisms. | DOS, Treas | May |
| c) Develop strategy for use of bilateral assistance and cooperation programs, including inventory of existing financial and technical assistance. | DOS, AID
EPA, DOE,
USDA, USTR
Treas, DOC | May |
| d) Analyze options for dealing with special concerns of small island states. | DOC | May |

6) Negotiation Subgroups/IPCC

- | | | |
|---|-----|---------|
| a) Develop and analyze options for negotiations subgroups and relation to IPCC structure. | DOS | Jan. 16 |
|---|-----|---------|

7) Verification, Monitoring, Compliance

- | | | |
|---|-------------------|---------|
| a) Develop US language on noncompliance and dispute settlement provisions in climate context. | DOS | Jan. 16 |
| b) Review possible trade and/or other sanctions for non-compliance and/or non-parties. | DOS, DOC,
USTR | July |

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ECONOMICS RESEARCH RELATED TO GLOBAL
ENVIRONMENTAL CHANGE

Report of an Interagency Ad Hoc Group

November 14, 1990

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EXECUTIVE SUMMARY

Although economic activity is a key determinant of the inputs, impacts, and consequences of global change processes, economics research has not to date been a major component of the global change research effort. Following up on the recent White House Conference on Science and Economics Research Related to Global Change, OMB asked CEES to convene an Ad Hoc group of economic experts to make recommendations regarding an agenda for economics research on global change issues and to identify resource levels and organizational changes required to support expanded research on the economics of global change.

A Research Agenda: Table ES-1 provides a schematic representation of a research agenda for the economics of global change, the details of which are elaborated in Section 2 of the report. The group believes that all of the items shown in Table ES-1 are important and worth pursuing, but has also endeavored to assign relative priorities among the broad research thrust areas and narrower research project areas it has identified. The group favors a focus on applied research, but recognizes that methodological research and data collection will in many cases play an important role in providing more credible answers to policy-relevant economic questions than can be given with the tools and information presently at hand. Therefore, the research agenda includes efforts to improve tools and data where these can be shown to provide a foundation for future applied analyses of important global change questions. We have deliberately avoided the issuance of specific "RFPs" for particular analyses, preferring to leave the sponsorship and defense of specific proposals in the hands of those seeking support to carry them out. We fully expect that the research agenda itself will evolve as new questions are identified and as the economics research community at large becomes more familiar with the global change issues.

Coordinating Economics Research: Although economics is now a part of the "Human Dimensions" science element of the U.S. Global Change Research Program (GCRP), and the Working Group on Mitigation and Adaptation Strategies (MARS) has an economics subcommittee, there is no strong economics focus within the present CEES global change research structure. The Ad Hoc group believes that the visibility of the proposed economics research program should be raised to a level commensurate with its pivotal role in global change policy questions. If economics research is to flourish within the present CEES structure, organizational changes will be needed. These include: 1) taking economics out of the "catch all" Human Dimensions science element within the GCRP and instituting a freestanding economics element within the GCRP; 2) creating an outside advisory panel on the economics of

global change to review research priorities; 3) increased economics research focus of MARS efforts by adding economics to the MARS leadership structure; and 4) participation of economics agencies in CEES deliberations involving economics research. For reasons detailed in its report, the ad hoc group believes that a reorganization along these lines has advantages over the alternatives of coordinating global change economics research from outside the CEES structure, or locating economics solely in either the GCRP or MARS.

As outlined below, the group recommends a substantial increase in funding for economics research funded through the competitive grants process. Since the interagency coordination process will have no direct role in the selection and monitoring of individual projects in the NSF competitive grants track, NSF should develop and implement a mechanism to insure that its program provides the largest possible contribution to the economics knowledge base relevant to global change policy. Our report outlines several suggestions in this regard.

Funding Economic Research: The group recommends a substantial increase in resources for the economics research effort. We propose a significant increase in support of economics research projects related to global change in the academic community by raising NSF support of this work to \$6 million annually (exclusive of support for institutions). This level of commitment would allow for initiation and completion of enough projects over a 5 to 10 year period to cover the initial research agenda in some depth while remaining within the supply capacity of the discipline.

We also recommend a substantial increase in funding of agency-based economics research. We note that proposed funding for economics research within agencies for FY 1991 --\$5.2 million -- reflected a 30 percent increase over the actual FY 1990 funding level of \$4.0 million. However, this level of proposed economics research funding still constitutes only one-half of one percent of proposed FY 1991 funding for the overall U.S. Global Change Research Program, and an increase in resources smaller than the 57 percent sought for the U.S. GCRP as a whole. Funding requests at various stages of the FY 1992 budget process are currently running at a much higher level -- about \$13 million. These requests, most notably proposals in the information/uncertainty and the impacts/adaptation areas, would enable agencies to address a set of relatively high research priorities that have not received sufficient attention. Assuming that the set of agency proposals, which we have not reviewed individually, are reasonably strong, a floor level of least \$10 million for agency-funded research on the economics of global change, reflecting a minimum increase in resources of \$5 million over proposed FY 1991 funding levels, would appear to be justified.

TABLE ES-1

Economics Research Priority Framework**Strategic Priorities**

Engage the Domestic and International Economics Research Community in a Coordinated Effort to Address Economic Issues Related to Global Environmental Change

Establish and Quantify Economic Inputs to and Consequences of Global Environmental Changes

Provide Economic Knowledge Foundation for Policy Analysis of Global Change Issues

Integrating Priorities

Document Economic System and Sector Trends and Sensitivities to Global Change Throughout the World

Focus Studies on Economic Issues Surrounding Impacts/Consequences/Responses to Global Environmental Change

Develop Interdisciplinary Linkages to Address Issues that Crosscut the Physical, Biological, and Economic Sciences.

Economics Research Priorities

(order of increasing priority: right to left, bottom to top)

<u>Economic Forces Affecting/Affected by Global Change</u>	<u>Impacts/Adaptation</u>	<u>Value of Information/ Decisionmaking Under Uncertainty</u>	<u>Technology/Practice Linked to Global Change</u>	<u>Policy and Policy Instrument Evaluation</u>
world model development	empirical study of environmental/economic linkages	identification of key information (integrated assessment)	economic evaluation of key technologies	policy instruments and public choice
international trade and global environmental effects	the valuation of environmental outcomes	economics of the information/action balance	structural/policy/institutional /legal factors affecting rate of technical change/diffusion	government/private interaction
growth in developing and industrialized countries		the role of uncertainty (scientific and economic) in public/private decisionmaking	forecasting the application of technology	policy evaluation criteria and tools
environmental accounting		intertemporal issues and irreversibilities	technology/practice as a determinant of impacts	
		data infrastructure		

Economics Research Related to Global Environmental Change

November 14, 1990

Introduction

The critical role of economics in global change questions was widely acknowledged by world leaders, including President Bush, at the recent White House Conference on Science and Economics Research Related to Global Change and at the Second World Climate Conference. Following up on this Conference and other recent developments, OMB asked CEES to convene an Ad Hoc group of economic experts to make recommendations regarding an agenda for economics research on global change issues and to identify resource levels and organizational changes required to support expanded research on the economics of global change. This report, which reflects the views of the group established in response to this request, sets out a framework for a greatly expanded role for economics research in both our domestic and international research efforts related to global change.

Section 1 of the report reviews the role of economics in the global change context and the sufficiency of current commitments to economics research. Section 2 outlines a prioritized agenda for economics research on global environmental change. Section 3 places ongoing research efforts in the context of the Section 2 agenda, while Section 4 provides a preliminary perspective on organizational requirements and budget resources to support economics research related to global environmental change.

Section 1: The Case for Expanded Economics Research

Ongoing research in the physical and biological sciences is framing some key aspects of the challenge posed by global environmental change. Results obtained to date suggest the need for increased international cooperation in addressing deforestation, ozone depletion, greenhouse gas accumulation, climate warming, possible loss of species, and other types of global environmental changes. A substantially enhanced economics research effort to better understand the relationship of these issues to human activities is one critical element of the needed cooperative effort.

Despite the central role of economic activities on both the "input" and "output" sides of the global change equation and also in the evaluation of possible response strategies, economics has not received additional resources as part of the acceleration of global change research. This paper presents economics research priorities, current economics research expenditures, and gaps in present efforts to inform the expansion of economics research on this topic.

Links Between Economics Research and Global Change: The Greenhouse Warming Example

The issue of a possible greenhouse warming provides a very clear illustration of the role of economics in global change issues. The relevant linkages are illustrated schematically in Figure 1.

On the input side, net emissions of the multiple greenhouse gases associated with human activity depend on the overall level of economic activity, its division across sectors of the economy, and the choice of technology within each sector. Global emissions forecasts on the time scale needed here -- several decades -- thus require extraordinarily detailed, long-term economic forecasts for many nations. As a humbling exercise, think back to the early 1970s and ask whether any forecaster -- economist or not -- could have predicted that energy sector emissions of carbon dioxide by the OECD countries would be stable from 1973 to 1985. While detailed forecasts for 100 years will never be made with confidence, a variety of techniques can be used to improve conditional forecasts. Reliable forecasts of future climate certainly require advances in the earth and biological sciences, but they also require advances in our ability to forecast emissions of greenhouse gases.

On the output side, economics plays a key role in assessments of the consequences of any greenhouse warming for human economic systems. Most of the world's economic activity -- certainly well over 90 percent -- would not be directly affected by any widely-discussed climate change scenarios. Effects in sectors that are climate-sensitive will depend on the magnitude and timing of any climate change, and also on opportunities for adaptation, which could be significantly affected by technological progress over the coming decades and by additional anticipatory adaptive responses in the private sector. An improved understanding of the relationship between the timing and magnitude of any warming and its consequences can provide the basis for improved estimates of the benefits of mitigation actions that seek to alter the trajectory of any warming.

Economics research will also contribute to the future refinement of evaluations of costs and human consequences of actions to curb net emissions of the greenhouse gases. Joint consideration of credible estimates of the costs and benefits of mitigation and/or planned adaptation activities can help point the way towards the selection of goals, strategies, and policies that best serve the interests of present and future generations. Finally, economics research findings can provide the basis for identification of the most cost-effective policy designs to reach these objectives.

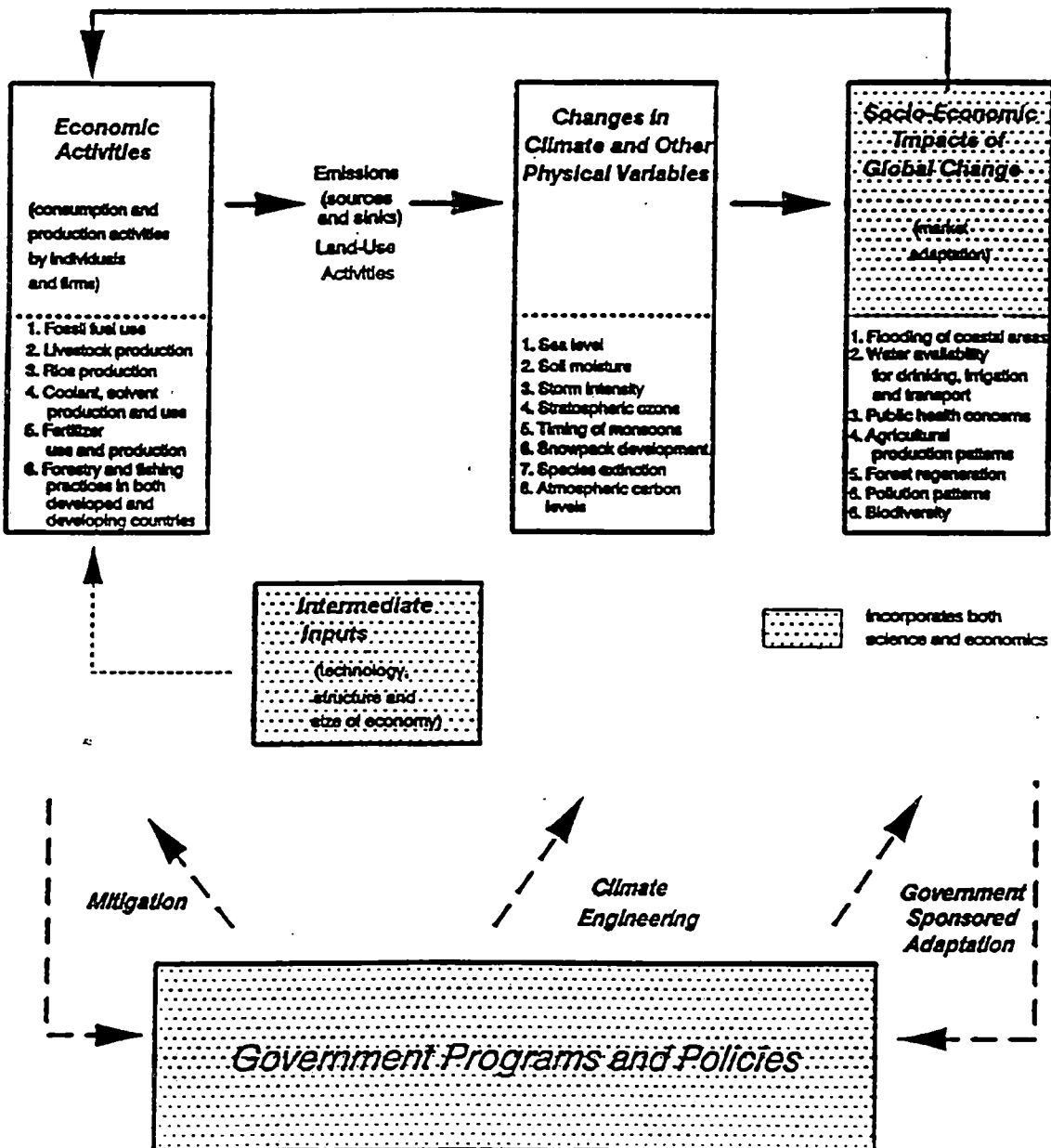
FIGURE 1

Economics and a Possible Greenhouse Warming:
Links to Science and Policy

input side

climate processes

output side



Finally, economics will play an important role in the development of integrated assessment models for global environmental change. Such models are needed to guide and coordinate research efforts across the physical, biological, and economic sciences to maximize the yield of knowledge relevant to decisionmaking. For example, it is critical to avoid a situation in which agronomists assume that they will get characterizations of climate that atmospheric modelers are not working to provide, or one in which major research efforts devoted to the refinement of knowledge that is not critical to decisionmaking, diverting both attention and resources from more policy-relevant uncertainties.

The Current Situation: Insufficient Economics Research Effort

Notwithstanding the central role of economics in global change issues, the current research effort in economics is small, fragmented, and often focused on short-term policy issues. For example, the President's budget for FY 1991 requests over \$1 billion for research on global change, but less than one half of one percent of this amount is devoted to research on the economics of global change.

The current focus of economic analysis on short-term policy issues contrasts sharply with the research strategy for the physical, biological, and environmental sciences. In climate modeling, for example, the strategy is to pursue careful research on a number of fronts to build the fundamental knowledge base necessary to improve the realism, accuracy, and credibility of long-term climate forecasts, recognizing that improvement will occur only gradually. In contrast, there has been little coordination of applied and basic research in economics, and there is no plan for building the knowledge base of research needed for more accurate forecasts of future economic conditions that drive global change processes and more credible future policy analyses on global change questions.

As already noted, the recent White House Conference highlighted a growing international appreciation of the need for more research on the economics of global change. The Committee on Global Change of the National Academy of Science has also emphasized economics in its call for more research on the human dimensions of global change in its 1988 report, Towards an Understanding of Global Change.

The U.S. Global Change Research Plan for FY 1990 includes a human dimensions component as one of its seven science elements. However, only 1 of 30 proposals funded in FY 1990 was an economics-only project (4 others involved joint work in economics and other disciplines). This outcome reflected a dearth of economics proposals in an area where the economics research community has not been actively engaged. More direct efforts to

engage the U.S. economics research community on global change questions are clearly needed. There is also a clear need for the establishment of new and direct channels of communication among economics researchers throughout the world, as present international cooperation in the "human dimensions" area has a weak or non-existent economics focus.

In sum, the current situation is characterized by (1) an insufficient overall level of effort, (2) inadequate coordination, and (3) inadequate attention to building the economics knowledge base as a foundation for improved policy analysis in the global change area.

November 30, 1990

MEMORANDUM FOR

FROM: HOWARD GRUENSPECHT

SUBJECT: Economics Materials for Distribution to EC

We would propose to send the following set of papers to our counterparts in Brussels in preparation for the discussions planned for the end of January. The papers represent a mix of government and outside work. These papers are broadly representative of ongoing work. A mix of approaches is deliberately included.

A draft cover letter is also attached.

Survey Paper

1. Interagency Task Force, The Economics of Long-Term Climate Change.

Top-Down Papers (Mostly Carbon Tax Evaluations)

2. Congressional Budget Office, Carbon Charges as a Response to Global Warming: the Effects of Taxing Fossil Fuels.
3. Nordhaus, The Costs of Slowing Climate Change: A Survey (October 1990) (note: uses comprehensive approach)
4. Nordhaus, To Slow or Not to Slow: The Economics of the Greenhouse Effect (November 1990)
5. Jorgenson and Wilcoxon, The Cost of Controlling U.S. Carbon Dioxide Emissions, Preliminary Draft (September 1990)

Bottoms-up Papers

6. Chandler, et. al. (paper from world strategies book)
7. Morris, Solomon, et. al.
(U.S. MARKAL model)
8. McGartland and Firlie, paper on Ethanol

Comprehensive Approach

9. Scheraga and Christofaro (USEPA)

NATIONAL ENERGY STRATEGY (NES) PROCESS

0 HEAVY PUBLIC INVOLVEMENT

- to identify obstacles and potential options
- interim report reporting public views April, 1990

0 OPTIONS DEVELOPMENT THROUGH ECONOMIC POLICY COUNCIL (EPC)

- multiple interagency task forces
- 3 themes: national security, electricity, environment

0 OPTIONS NOW BEING REVIEWED AND SHARPENED BY EPC

- third principals meeting next week

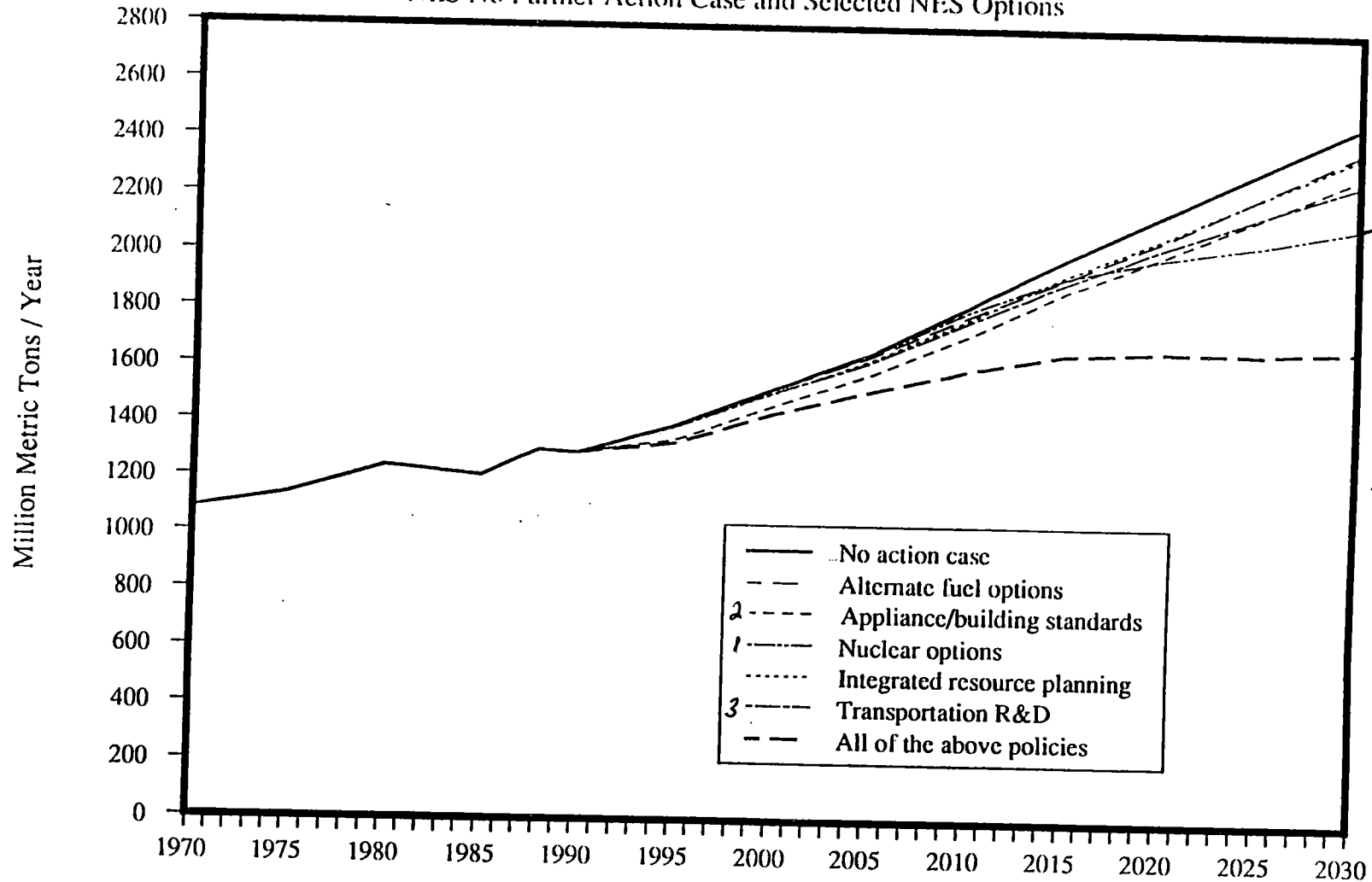
0 TO COMPLETE THE NES

- President's decisions on options, December
- Public report and announcement
- required by early April 1991
- may be completed by mid February
- general elements perhaps late January

Hernandez

Carbon Emissions

NES No Further Action Case and Selected NES Options



ROLE OF NES IN NEGOTIATIONS

0 MANY OPTIONS REDUCE CO2 AND OTHER GHG

- done for other reasons
- hence, these are energy additions to No Regrets policy

0 REDUCTIONS CAN BE SIGNIFICANT

- generally grow over long-term
- if an aggressive set of options, could approach zero CO2 growth
- allow national strategy option versus targets and timetables per ministerial declarations

0 ISSUES

- if used in negotiations, could be translated into reduction goals
- need to also estimate other GHG changes to be used to demonstrate comprehensive approach
- other national policies need to be evaluated not only energy initiatives
- timing of NES vis-a-vis the February meeting may not be appropriate

Withdrawal/Redaction Sheet

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WHORM Cat.:
File Location: Global Warming 1991 [3]

Open on Expiration of PRA
 (Document Follows)
 By JP (NLGB) on 6/28/05

Date Closed: 1/4/2005	OA/ID Number: 29159-002
FOIA/SYS Case #: 1998-0004-F[2]	Appeal Case #:
Re-review Case #: 2005-0426-S	Appeal Disposition:
P-2/P-5 Review Case #:	Disposition Date:
AR Case #:	MR Case #:
AR Disposition:	MR Disposition:
AR Disposition Date:	MR Disposition Date:

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 P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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 (b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
 (b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
 (b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
 (b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
 (b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
 (b)(9) Release would disclose geological or geophysical information

THE WHITE HOUSE

WASHINGTON

November 5, 1990

90 NOV -6 PM 4:35

MEMORANDUM FOR GOVERNOR SUNUNU

FROM: ROGER B. PORTER *REP*
SUBJECT: Second World Climate Conference

Last week, 700 scientists and environmental specialists met in Geneva at the second world climate conference. (The first world climate conference was held last year in Noordwijk.) The conference is divided into two parts. The first meeting, held last week, focused on the science of global change. It was by invitation only, and those attending came in their personal, not official, capacities. According to one source, over 92 government and nongovernment people from the United States came to last week's session.

The attached Conference Statement produced from this first week of meetings contains the following conclusions:

- o Notwithstanding scientific uncertainties, nations should take steps now towards reducing sources and increasing sinks of greenhouse gases.
- o Technically feasible and cost-effective opportunities exist to reduce carbon dioxide emissions in all countries.

This week, an estimated 100 environmental Ministers or other official representatives will be meeting with the primary objective of producing a Ministerial Declaration. Thatcher is scheduled to address the Conference, while Kohl and Mitterrand are not expected to show.

Members of the U.S. delegation, lead by Dr. John Knauss, NOAA, believe they have won several important victories in muting the language of the Ministerial Declaration in the preceeding weekend prepcom meetings. They note three areas that were changed in the draft Ministerial document:

- o Instead of referring only to timetables and targets, the document now reads: "We urge other developed countries to establish targets and/or feasible national programs or strategies which will have significant effects on limiting emissions of greenhouse gases not controlled by the Montreal Protocol."

- o The original draft Ministerial document included a "precautionary principle" that stated countries should act even if there is scientific uncertainty. This principle was reportedly changed in a way to make it meaningless.
- o The reference to additional funding was changed from "new and additional funding" to "we recommend that adequate and additional financial resources should be mobilized."

Members of the U.S. delegation believe that this amended draft document will survive this week's Ministerial session.

Attachment

Maynard

SECOND WORLD CLIMATE CONFERENCE
SCIENTIFIC & TECHNICAL
PORTION

S&T/SWCC/No.: 13

SECOND WORLD CLIMATE CONFERENCE

CONFERENCE STATEMENT
SCIENTIFIC/TECHNICAL SESSIONS

FOREWORD

1. The Second World Climate Conference was convened in Geneva, Switzerland, from 29 October through 7 November, 1990, under the sponsorship of the World Meteorological Organization; the United Nations Environment Programme; the United Nations Educational, Scientific, and Cultural Organization and its Intergovernmental Oceanographic Commission; the Food and Agriculture Organization; and the International Council of Scientific Unions. This Statement was adopted by the participants in the scientific and technical sessions from 29 October to 3 November 1990, on the basis of the presentations at the Conference, the deliberations of task groups of participants organized to address various problem areas, and plenary discussions involving all participants. The scientific and technical sessions involved more than 700 participants from over 100 countries.

2. The Conference discussed the results of the first decade of work under the World Climate Programme (WCP), the First Assessment Report of the Intergovernmental Panel on Climate Change (August, 1990) and the development of the International Geosphere-Biosphere Programme (IGBP) and other relevant global programmes. In particular, the Conference considered the role, priorities, and programme structure for the future development of the World Climate Programme.

SUMMARY STATEMENT

1. Climate issues reach far beyond atmospheric and oceanic sciences, affecting every aspect of life on this planet. The issues are increasingly pivotal in determining future environmental and economic well-being. Variations of climate have profound effects on natural and managed systems, the economies of nations and the well-being of people everywhere. A clear scientific consensus has emerged on estimates of the range of global warming which can be expected during the 21st century (paragraph B). If the increase of greenhouse gas concentrations is not limited, the predicted climate change would place stresses on natural and social systems unprecedented in the past 10,000 years.

- 2 -

2. At the First World Climate Conference in 1979, nations were urged "to foresee and to prevent potential man-made changes in climate that might be adverse to the well-being of humanity". This Conference concludes that, notwithstanding scientific and economic uncertainties, nations should now take steps towards reducing sources and increasing sinks of greenhouse gases through national actions and negotiation of a global convention on climate change, and related legal instruments, with the long-term goal of halting the build-up of greenhouse gases at a level that minimizes risks to society and natural ecosystems. A major international observational and research effort will be essential to strengthen the knowledge-base on climate processes and human interactions, and to provide the basis for operational climate monitoring and prediction. The remaining uncertainties must not be the basis for deferring societal response to these risks. Many of the actions that would reduce risk are also desirable on other grounds.

PART I. MAIN CONCLUSIONS AND RECOMMENDATIONS

A. Greenhouse Gases and Climate Change

1. Emissions resulting from human activities are substantially increasing atmospheric concentrations of the greenhouse gases. These increases will enhance the natural greenhouse effect, resulting on average in an additional warming of the Earth's surface. The Conference agreed that this and other scientific conclusions set out by the IPCC reflect the international consensus of scientific understanding of climate change. Without actions to reduce emissions, global warming is predicted to reach 2 to 5 degrees C over the next century, a rate of change unprecedented in the past 10,000 years. The warming is expected to be accompanied by a sea level rise of 65 cm + 35 cm by the end of the next century. There remain uncertainties in predictions, particularly in regard to the timing, magnitude and regional patterns of climate change.

2. Climate change and sea level rise would seriously threaten low-lying islands and coastal zones. Water resources, agriculture and agricultural trade, especially in arid and semi-arid regions, forests, and fisheries are especially vulnerable to climate change. Climate change may compound existing serious problems of the global mismatch between resources, population and consumption. In many cases the impacts will be felt most severely in regions already under stress, mainly in developing countries.

3. Global warming induced by increased greenhouse gas concentrations is delayed by the oceans; hence, much of the change is still to come. Inertia in the climate system due to the influence of the oceans, the biosphere and the long residence times of some greenhouse gases means that climate changes that occur may persist for centuries.

4. Natural sources and sinks of greenhouse gases are sensitive to a change in climate. Although many of the response or feedback processes are poorly understood, it appears likely that, as climate warms, these feedbacks will lead to an overall increase rather than a decrease in greenhouse gas concentrations.

5. The historical growth in emissions has been a direct consequence of the increase of human population, rising incomes, the related exploitation of fossil fuels by industrialized societies and the expansion of agriculture. Under "business-as-usual" assumptions*, it is projected that emissions will continue to grow in the future as a consequence of a projected doubling of energy consumption in the first half of the 21st century and an expected doubling of population by the latter half. As a result, the effect of human-induced greenhouse gas concentrations on the earth's radiation balance would by 2025 correspond to a doubling of carbon dioxide unless remedial actions are taken.

6. Over the last decade, emissions of carbon dioxide (CO₂) contributed 55% of the increased radiative forcing produced by greenhouse gases from human activities. The CFCs contributed about 24% of the past decade's changes, and methane 15%, with the balance due to other greenhouse gases. With controls on CFCs, the relative importance of CO₂ emissions will increase, provided the substitutes for CFCs have minimal greenhouse warming potential. Some 75% of total CO₂ emissions have come from the industrialized countries.

7. The above emissions can be expected to change the planet's atmosphere and climate, and a clear scientific consensus has been reached on the range of changes to be expected. Although this range is large, it is prudent to exercise, as a precautionary measure, actions to manage the risk of undesirable climate change. In order to stabilize atmospheric carbon dioxide concentrations by the middle of the 21st century at about 50% above pre-industrial concentrations, a continuous world-wide reduction of net carbon dioxide emissions by 1 to 2% per year starting now would be required. The Intergovernmental Panel on Climate Change (IPCC) also considered three other emissions scenarios, which would not lead to stabilization of CO₂ concentrations in the 21st century. A 15-20% reduction in methane emissions would stabilize atmospheric concentrations of that gas.

8. This Conference concludes that technically feasible and cost-effective opportunities exist to reduce CO₂ emissions in all countries. Such opportunities for emissions reductions are sufficient to allow many industrialized countries to stabilize CO₂ emissions from the energy sector and to reduce these emissions by at least 20 percent by 2005. The measures include increasing the efficiency of energy use and employing alternative fuels and energy sources. As additional measures to achieve further cost-effective reductions are identified and implemented, even greater decreases in emissions would be achieved in the following decades. In addition, reversing the current net losses in forests would increase storage of carbon. The economic and social costs and benefits of such measures should be urgently examined by all nations. An internationally coordinated assessment should be undertaken through the IPCC.

* "Business-as-usual" assumes that few or no steps are taken to limit greenhouse gas emissions. Energy use and clearing of tropical forests continue and fossil fuels, in particular coal, remain the world's primary energy source. The Montreal protocol comes into effect but without strengthening and with less than 100 percent compliance.

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9. Countries are urged to take immediate actions to control the risks of climate change with initial emphasis on actions that would be economically and socially beneficial for other reasons as well. Nations should launch negotiations on a climate change convention and related legal instruments, without delay and with the aim of signing such a convention in 1992.

B. Use of Climate Information in Assisting Sustainable Social and Economic Development

Climate data, analyses, and eventually climate predictions can contribute substantially to enhancing the efficiency and security of economic and developmental activities in environmentally sustainable ways. These benefits are particularly important in food and wood production, water management, transportation, energy planning and production (including assessment of potential resources of biomass, hydropower, solar and wind energy), urban planning and design, human health and safety, combatting of drought and land degradation, and tourism. This requires both data on the climate system, and its effective application. Data acquisition, collection, management and analysis must be more vigorously supported in all countries and special assistance provided to developing countries through international cooperation. Transfer of techniques for applying climate information should be accelerated through more widespread use of software (e.g. CLICOM) for readily available personal computers and other means. Further development of methods for predicting short-term variations in climate and the environmental and social impacts should be vigorously pursued. These advances would provide enormous economic and other welfare benefits in coping with droughts, prolonged rain, and periods of severe hot and cold weather. Such predictions will require major steps forward in ocean-atmosphere-biosphere observing systems. Much greater efforts are needed to increase involvement in these fields by developing countries, especially through increased education and training.

C. Priorities for Enhanced Research and Observational Systems

1. A consensus exists among scientists as summarized in the Report of Working Group I of the IPCC that climate change will occur due to increasing greenhouse gases. However, there is substantial scientific uncertainty in the details of projections of future climate change. Projections of future regional climate and climate impacts are much less certain than those on a global scale. These uncertainties can only be narrowed through research addressing the following priority areas:

- clouds and the hydrological cycle
- greenhouse gases and the global carbon and biogeochemical cycles
- oceans: physical, chemical and biological aspects; and exchanges with the atmosphere
- paleo-climatic studies
- polar ice sheets and sea ice
- terrestrial ecosystems.

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2. These subjects are being addressed by national programmes, the World Climate Research Programme and the International Geosphere-Biosphere Programme. Increased national support and substantially increased funding of these programmes is required if progress on the necessary time scale is to be made in reducing these uncertainties.

3. Present observational systems for monitoring the climate system are inadequate for operational and research purposes. They are deteriorating in both industrialized and developing regions. Of special concern is the inadequacy of observation systems in large parts of the southern hemisphere.

4. High priority must be placed on providing high-quality, long-term data for climate-related studies. Data should be available at no more than the cost of reproduction and distribution. A full and open exchange of global and other data sets needed for climate-related studies is required.

5. There is an urgent need to create a Global Climate Observing System (GCOS) modelled on the World Weather Watch Global Observing System and the Integrated Global Ocean Service System and including both space-based and surface-based observing components. GCOS should also include the data communications and other infrastructure necessary to support operational climate forecasting.

6. GCOS should be designed to meet the needs for:

- (a) climate system monitoring, climate change detection and response monitoring, especially in terrestrial ecosystems
- (b) data for application to national economic development, and
- (c) research towards improved understanding, modelling and prediction of the climate system.

7. The main components of such a GCOS would be:

- (1) an improved World Weather Watch Programme;
- (2) the establishment of a global ocean observing system (GCOS) of physical, chemical and biological measurements;
- (3) the maintenance and enhancement of monitoring programmes of other key components of the climate system, such as the distribution of important atmospheric constituents (including the Global Atmosphere Watch), changes in terrestrial ecosystems, clouds and the hydrological cycle, the earth's radiation budget, ice sheets, and precipitation over the oceans.

8. The further development and implementation of the GCOS concept should be pursued with urgency by scientists, governments and international organizations. All countries must ensure a full and open exchange of the data sets needed for climate system research, process and impact studies, and modelling.

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9. The impacts of climate variability on human socio-economic systems have provided major constraints to development. Climate change may compound these constraints. In semi-arid regions of Africa, drought episodes have been directly responsible for major human disasters. Research undertaken during the first decade of the WCP and through other international and national programmes has improved drought early warning systems including FAO's Global Early Warning System and increased the reliability of climate impact analyses. But much more remains to be done. Intensified efforts are required to refine further our ability to predict short-term climate variability, anticipate climate impacts, and identify rational strategies to mitigate or prevent adverse effects. The threat of climate change brings new challenges to the future well-being of people. This requires greater efforts to understand impacts of climate change. Mitigation and adaptation strategies are also essential. Immediate steps to be taken include:

- (a) national and regional analyses of the impacts of climate variability and change on society, and study of the range of response and adaptation options available.
- (b) closer co-operation and communication among natural and social scientists, to ensure that climate considerations are accounted for in development planning.
- (c) significant increases in resources to carry out impact/adaptation studies.

10. Improvements in energy efficiency and non-fossil fuel energy technologies are of paramount importance, not only to reduce greenhouse gas emissions but to move to more sustainable development pathways. Such advances will require research and development, as well as technology transfer and co-development.

11. A specific initiative would create a network of regional, interdisciplinary research centres, located primarily in developing countries, and focussing on all of the natural science, engineering and social science disciplines required to support fully integrated studies of global change and its impacts. The centres would conduct research and training on all aspects of global change and study the interaction of regional and global policies.

D. Public Information

People need better information on the crucial role climate plays in development and the additional risks posed by climate change. Governments, intergovernmental and non-governmental organizations should give more emphasis to providing accurate public information on climate issues. The public information and education and training component in the WCP and IGBP must also be expanded.

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PART II

Specific Issues:

1. Water

1.1 Among the most important impacts of climate change will be its effects on the hydrological cycle and water management systems, and through these, on socio-economic systems. Increases in incidence of extremes, such as floods and droughts, would cause increased frequency and severity of disasters.

1.2 The design of many costly structures to store and convey water, from large dams to small drainage facilities, is based on analyses of past records of climatic and hydrological parameters. Some of these structures are designed to last 50-100 years or even longer. Records of past climate and hydrological conditions may no longer be a reliable guide to the future. The design and management of both structural and non-structural water resource systems should allow for the possible effects of climate change.

1.3 Data systems and research must be strengthened to predict water resources impacts, detect hydrological changes, and improve hydrological parameterization in global climate models.

1.4 Transfer of existing and novel technologies, for more efficient use of water for irrigation, should be made available to developing countries in semi-arid zones.

2. Agriculture and Food

2.1 Important uncertainties remain regarding the prediction of the magnitude and nature of potential impacts of changing climate and higher CO₂ levels on global food security. The potential impact on food production in developing countries (with more than half the world's population) could be more uncertain than recent reviews suggest.

2.2 High priority should therefore be given to research on the direct effects of rising CO₂ concentrations on food and fibre crop productivity and equal priority should be given to research on agricultural emissions so as to determine agriculture's present and potential role as a source of and sink for greenhouse gases, and to clarify the costs and possible trade-offs arising from limitation measures.

2.3 New or strengthened institutional mechanisms are required to upgrade natural resource inventories, research strategies and extension services to raise agricultural productivity and minimize emissions. These mechanisms should include collaborative programmes between FAO and international and national agencies with stress on interdisciplinary activities on the food security implications.

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3. Oceans, Fisheries, and Coastal Zones

3.1 Shorter term variations in the earth's climate are determined by the coupled ocean - atmosphere system. Coastal zones and their associated high biological productivity, including fisheries, are especially affected. Thus, an improved data base of oceanic parameters is considered indispensable for operational climate forecasting. It is recommended that a global ocean observing and data management system be developed for improving predictions of climate change. Research on the ocean will provide quantification of the feedback loops in climate processes. Observation and research on the El Nino - Southern Oscillation phenomena, on upwelling areas and on biological productivity of the open sea are also important.

3.2 Coastal zones, which are the source of most of the global fish catch, are especially susceptible to effects of global warming and sea level rise. Predicting the impact of changes would be of enormous benefit to the increasing number of people living in coastal areas. Thus, it is also recommended that a programme of coastal zone research and monitoring be established to identify the effects of climate change on the coast and coastal ecosystems, and to assess the vulnerability of various natural and managed ecosystems such as coral reefs, mangroves and coastal aquaculture.

3.3 Action should be taken now to develop coastal zone adaptation strategies and policies.

4. Energy

4.1 In order to stabilize atmospheric concentrations of greenhouse gases while allowing for growth in emissions from developing countries, industrialized countries must implement reductions even greater than those required, on average, for the globe as a whole. However, even where very large technical and economic opportunities have been identified for reducing energy-related greenhouse gas emissions, and even where there are significant and multiple benefits associated with these measures, implementation is being slowed and sometimes prevented by a host of barriers. These barriers exist at all levels - at the level of consumers, energy equipment manufacturers and suppliers, industries, utilities, and governments. Overcoming the barriers obstructing least-cost approaches to meeting energy demands will require responses from all parts of society - individual consumers, industry, governments, and non-governmental organizations.

4.2 Developing countries also have an important role in limiting climate change. Maintaining development as a principal objective, energy and development paths can be chosen that have the additional benefit of reducing radiative forcing.

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5. Land Use and Urban Planning

Population growth, increasing urbanization, and competing demands for finite areas of arable land will produce increasingly severe problems of food supply, energy production, and water resources. Climate changes may exacerbate these problems in some regions. Prudent planning will require baseline analyses of land use, quality and quantity of water resources, and the vulnerability of urbanized societies to environmental change. In particular, improved adaptation of urban areas to local climatic regimes needs to be achieved by more appropriate design of their layouts and building densities, and of building construction through modifications of building and planning regulations. Because conurbations make a major contribution to energy-related greenhouse gas emissions, the design and efficiency of all aspects of urban systems should be enhanced.

6. Health and Human Dimensions

6.1 The direct impact of climate change on people, their health and cultural heritage, could be severe. There is likely to be increased health inequity between peoples of developing and developed countries. Climatic change could result in creating environmental refugees with associated increases of ill-health, disease and death among them.

6.2 Global warming is likely to shift the range of favourable conditions for certain pests and diseases, causing additional stresses on people, particularly those of the semi-arid tropics. It must be appreciated however that serious problems may arise in all parts of the world.

6.3 Research into how human behaviour contributes to and responds to climate change must have increased emphasis. Public awareness and education programmes are particularly essential in this regard.

7. Environment and Development

7.1 Climate change, superimposed on population pressures, excessive consumption, and other stresses on the environment imperils the sustainability of socio-economic development throughout the world. In addition, slowing climate change will give countries more time to enhance their prospects for sustainable development. The developed countries need to reduce emissions and assist the developing countries to adopt new, clean technologies.

7.2 Climate change has such important implications for the sustainability of development that policy responses, including measures to reduce greenhouse gases, measures to reduce deforestation, and the commitment of financial and other resources, are justified for that reason alone. Economic policies, such as subsidies and trade restraints, can distort markets so they harm the environment and contribute to global warming and sea level rise. There is an imperative need for development policies that not only reduce global warming trends but also increase economic and social resilience.

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8. Forests

While increasing forest cover can contribute to the slowing of global climate change, this is not the major cure for the problem.

Five priority actions are recommended:

Firstly, assessing national opportunities to increase forest carbon storage commensurate with national resource development policies, developing an approach by 1992 and completing assessment by 1995.

Secondly, managing the world's forests to optimize biomass and resultant carbon storage in addition to the maintenance of sustainable yields of forest products, biological diversity, water quality and the many other values that forests provide.

Thirdly, accelerating research to assess the added contribution that forests can make to atmospheric CO₂ reduction and the impacts of climate change on the world's forests.

Fourthly, designing and implementing international monitoring systems to determine conditions and changes in forest ecosystems in response to anticipated climate changes.

Finally, supporting the development of a proposed international instrument on conservation and development of the world's forest linked with the proposed climate and biodiversity conventions.

PART III

Organizational and Policy Issues for International Activities

1. The future structure of the WCP

1.1 The organizational framework for international scientific research is in place, constituted by the WCRP, emphasizing the physical aspects, and the IGBP, covering bio-geochemical aspects.

1.2 The World Climate Data Programme, renamed the World Climate System Monitoring Programme, should be redefined to take into account new objectives.

1.3 Additional elements of the new WCP (WCP-2) should cover adaptation and mitigation, and education.

1.4 Governments should establish national committees for the WCP to mobilize support for national activities and to coordinate efforts. The UN agencies and ICSU should work towards ensuring regular contact and exchange of information with national committees.

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1.5 The mechanism established for overall coordination of the WCP, involving meetings of the chairs of steering bodies for the various components, should be actively supported by WMO, the other UN bodies concerned and ICSU. Annual meetings of Executive Heads should consider their recommendations.

1.6 Restructuring and strengthening of the WCP will also be necessary to support new activities, such as the development of the proposed GOOS. The Conference recommended that a proposal for the new structure of WCP be formulated and presented to the Eleventh World Meteorological Congress, May 1991, and at appropriate meetings of other participating agencies.

2. Special needs of the developing countries

2.1 As stated in the IPCC report, industrialized and developing countries have a common but differentiated responsibility for dealing with the problems of climate change. The problem is largely the consequence of past patterns of economic growth in the industrial countries. However, in future the much needed economic growth in the developing countries could play an important role in determining the rate of climate change.

2.2 Developing countries are being asked to participate in the alleviation of the legacy of environmental damage from prior industrialization. If they are to avoid the potentially disastrous course followed by industrialized countries in the past, they need to adopt modern technologies early in the process of development, particularly in regard to energy efficiency. They also must be full partners in the global scientific and technical effort that will be required. It is clear that developing countries must not go through the evolutionary process of previous industrialization but rather, must "leapfrog" ahead directly from a status of under-development through to efficient, environmentally benign, technologies presently found only in the most advanced industrial economies.

2.3 Although developing countries have collaborated in providing data, and participated to a degree in meetings and research, they have benefited to a lesser extent from the analyses developed from their contributions, and even less so from the applications derived therefrom.

2.4 Therefore, a massive and sustained flow of scientific and technological expertise towards the development of the intellectual resources, technical and institutional capacity of the developing countries is a necessary complement to the efforts of those countries.

2.5 Developing countries should be assisted to build up their capabilities

- to monitor, assess and apply climate information;
- to prepare inventories of greenhouse gases emissions and future emissions projections;
- to identify impacts of potential global warming;

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- to prepare cost estimates and priorities for response strategies to adapt and mitigate problems posed by climate change;
- to participate in the World Climate Programme.
- o The mechanisms of the transfer of technology and provision of technical assistance and co-operation to developing countries should take into account considerations such as the need for preferential and assured access, intellectual property rights, the environmental soundness of such technology and the financial implications.
- o Taking note that industry plays a significant role in the development and transfer of science and technology, efforts by industry to promote further the development and transfer of environmentally sound technologies should be encouraged, and policies to encourage such efforts should be formulated.
- o Additional financial resources will have to be channelled to developing countries for those activities which contribute both to limiting greenhouse gas emissions and/or adapting to any adverse effects of climate change, and promoting economic development. Areas for co-operation and assistance could include the efficient use of energy, land use planning, forest management, soil and water conservations, strengthening of observational systems and scientific and technological capabilities.

3. Co-operation in international research

3.1 The existing and planned research projects of the WCRP and the IGBP address the highest priority scientific issues related to the understanding and prediction of climate variability and change.

3.2 These programmes should be implemented completely and rigorously. It is particularly important that adequate funding including long term funding be provided.

3.3 In view of the progress made in climate research, it is now timely to proceed to the detailed design of an operational global climate observing system, together with the data communications and other infrastructure needed to support operational climate forecasting. Governments should enter into early discussions aimed at international cooperation in operational climate forecasting and climate change research.

4. Co-ordinated International Activities

4.1 The Conference endorsed the three streams of international activity:

- a. continuing global measurement and research efforts through the WCP, IGBP, and other related international programmes.

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- b. Assessment functions of a continuing IPCC to support negotiation and administration of a Convention.
- c. Development of a Convention on Climate Change for governmental action.

4.2 The UN Conference on Environmental and Development (Brazil 1992) provides a valuable opportunity to relate the above three themes to all the other environment/development issues and objectives being examined by the Conference. It is therefore essential that the three streams should interact effectively with UNCED.

4.3 It is proposed that the sponsoring agencies for the SWOC consider the possibility of holding a Third World Climate Conference at an appropriate time about 2000 AD.

5. Policy Development

5.1 The development of policy regarding climate change requires on the part of policy makers an understanding of the underlying science and a weighing of the scientific uncertainties associated with the prediction of climate change and its likely impacts. An important aspect of future work is therefore a continued dialogue between scientists and policy makers.

5.2 It is essential that all parties to any Convention and related legal instruments should, under its obligations, participate fully in the free exchange and flow of information necessary for the development and technical input of the convention. Such a convention should include a technical annex to provide for:

- International co-operation in research, systematic observation and exchange of related information;
- Adjustments based on up-dates of scientific knowledge;
- Strengthening national scientific and environmental capabilities of developing countries.



EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL ON ENVIRONMENTAL QUALITY
WASHINGTON, D.C. 20500

Michael R. Deland
Chairman

(202) 395-5080

November 6, 1990

MEMORANDUM TO GOVERNOR SUNUNU

FROM: Mike Deland

Re: PM Thatcher's Speech to 2nd World Climate Conference

Prime Minister Thatcher delivered the attached speech earlier today in Geneva.

Highlights:

Thatcher commits the UK "as part of an international effort including other leading countries" to stabilize CO2 emissions at 1990 levels by the year 2005.

She recognizes that "Targets on their own are not enough," and goes on to say that the UK now requires, by law, that a substantial proportion of their electricity come from low or no CO2 producing sources, including an important contribution from nuclear.

She picks up on the phrase "No Regrets," but also speaks in terms of "insurance policies."

She tackles the issue of resources head on, holding out the Montreal Protocol as a precedent for better-off countries assisting the poorer ones.

And, in an interesting choice of words, announces their plans "to replant one of the ancient forests of England..."

cc: Andy Card
Michael Boskin
Allan Bromley
Bill Reilly
Admiral Watkins

NOT FOR PUBLICATION, BROADCAST OR USE ON CLUB TAPES
BEFORE 11.15 LOCAL TIME ON TUESDAY 6 NOVEMBER 1990

TEXT OF A SPEECH

MADE BY THE PRIME MINISTER

THE RT HON MARGARET THATCHER FRS MP

AT THE SECOND WORLD CLIMATE CONFERENCE

IN GENEVA

ON

TUESDAY 6 NOVEMBER 1990

PRIME MINISTER'S OFFICE
10 DOWNING STREET
WHITEHALL
LONDON
SW1A 2AA

PLEASE CHECK AGAINST DELIVERY

[Introduction]

Mr. Chairman, Your Majesty, President Koller, Distinguished Colleagues, Your Excellencies, Ladies and Gentlemen,

May I begin by thanking Heads of Agencies and Organisations for sponsoring this Second World Climate Conference, and indeed all those connected with it. It is a most important event for all our countries and I wish you success in your endeavours.

Mr. Chairman, since the last World War, our world has faced many challenges, none more vital than that of defending our liberty and keeping the peace. Gradually and painstakingly we have built up the habit of international cooperation, above all through the United Nations. The extent of our success can be seen in the Gulf, where the nations of the world have shown unprecedented unity in condemning Iraq's invasion and taking the measures necessary to reverse it.

But the threat to our world comes not only from tyrants and their tanks. It can be more insidious though less visible. The danger of global warming is as yet unseen, but real enough for us to make changes and sacrifices, so that we do not live at the expense of future generations.

Our ability to come together to stop or limit damage to the world's environment will be perhaps the greatest test of how far we can act as a world community. No-one should under-estimate the imagination that will be required, nor the scientific effort, nor the unprecedented co-operation. We shall have to show statesmanship of a rare order. It's because we know that, we are here today.

[Man and Nature: out of balance]

For two centuries, since the Age of Enlightenment, we assumed that whatever the advance of science, whatever the economic development, whatever the increase in human numbers, the world would go on much the same. It was progress. And that was what we wanted.

Now we know that this is no longer true.

We have become more and more aware of the growing imbalance between our species and other species, between population and resources, between humankind and the natural order of which we are part.

In recent years, we have been playing with the conditions of the life we know on the surface of our planet. We have cared too little for our seas, our forests and our land. We have treated the air and the oceans like a dustbin. We have come to realise that man's activities and numbers threaten to upset the biological balance which we have taken for granted and on which human life depends.

We must remember our duty to Nature before it is too late. That duty is constant. It is never completed. It lives on as we breathe. It endures as we eat and sleep, work and rest, as we are born and as we pass away. The duty to Nature will remain long after our own endeavours have brought peace to the Middle East. It will weigh on our shoulders for as long as we wish to dwell on a living and thriving planet, and hand it on to our children and theirs.

[The importance of research]

I want to pay tribute to the important work which the United Nations has done to advance our understanding of climate change, and in particular the risks of global warming. Dr. Tolba and Professor Obasi deserve our particular thanks for their far-sighted initiative in establishing the Intergovernmental Panel on Climate Change.

The IPCC report is a remarkable achievement. It is almost as difficult to get a large number of distinguished scientists to agree, as it is to get agreement from a group of politicians. As a scientist who became a politician, I am perhaps particularly qualified to make that observation!

Of course, much more research is needed. We do not yet know all the answers. Some major uncertainties and doubts remain. No-one can yet say with certainly that it is human activities which have caused the apparent increase in global average temperatures. The IPCC report is very careful on this point. For instance, the total amount of carbon dioxide reaching the atmosphere each year from natural sources is some 600 billion tonnes, while the figure resulting from human activities is only 26 billion tonnes. In relative terms that is not very significant. Equally we know that the increases of carbon dioxide in the atmosphere date from the start of the industrial revolution. And we know that those concentrations will continue to rise if we fail to act.

Nor do we know with any precision the extent of the likely warming in the next century, nor what the regional effects will be. We cannot be sure of the role of clouds.

There is a continuing mystery about how atmospheric carbon, including the small extra contribution from human sources, is being absorbed: is most of it going into the ocean, as used to be thought? Or is it being increasingly absorbed by trees or plants, or soils, especially in the northern hemisphere? These are questions that need answers, sooner rather than later.

Global climate change within limits need not by itself pose serious problems - our globe has after all seen a great deal of climate change over the centuries. It is notable that the blue-green algae which dominated the Precambrian period at the dawn of life are still major components of the marine phytoplankton today. Despite the climate changes of many millions of years, these microbes have persisted on earth virtually unchanged, pumping out life-giving oxygen into the atmosphere and mopping up carbon dioxide.

The real dangers arise because climate change is combined with other problems of our age: for instance the population explosion;

- the deterioration of soil fertility;
- increasing pollution of the sea;
- intensive use of fossil fuel;
- and destruction of the world's forests, particularly those in the tropics.

Britain will continue to play a leading role in trying to answer the remaining questions, and to advance our state of knowledge of climate change. This year, we have established in Britain the Hadley Centre for Climate Prediction and Research for this purpose. We need to improve in particular our understanding of the effect of the oceans on our weather, improve too our capability to model climate change. I have seen for myself the outstanding work being done on both these subjects at the National Center for Atmospheric Research in Boulder, Colorado. ✓

We must also make sure that research is carefully targeted. Too many people can do the same thing, and at the same time vital problems can be neglected. The task of global observation is immense. It will require a coordinated effort more ambitious than any attempted before, as the meeting of scientists and experts last week recognized.

[The need for precautionary action]

But the need for more research should not be an excuse for delaying much needed action. There is already a clear case for precautionary action at an international level. The IPCC tells us that we cannot repair the effects of past behaviour on our atmosphere as quickly and as easily as we might cleanse a stream. It will take, for example, until the second half of the next century, until the old age of my grandson, to repair the damage to the ozone layer above the Antarctic. And some of the gases we are adding to the global heat trap will endure in the Earth's atmosphere for just as long.

The IPCC tells us that, on present trends, the earth will warm up faster than at any time since the last ice age. Weather patterns could change so that what is now wet would become dry, and what is now dry would become wet. Rising seas could threaten the livelihood of that substantial part of the world's population which lives on or near coasts. The character and behaviour of plants would change, some for the better, some for worse. Some species of animals and plants would migrate to different zones or disappear for ever. Forests would die or move. And deserts would advance as green fields retreated.

Many of the precautionary actions that we need to take would be sensible in any event. It is sensible to improve energy efficiency and use energy prudently; sensible to develop alternative and sustainable sources of supply; sensible to replant the forests which we consume; sensible to re-examine industrial processes; sensible to tackle the problem of waste. I understand that the latest vogue is to call them 'no regrets' policies. Certainly we should have none in putting them into effect. ✓

And our uncertainties about climate change are not all in one direction. The IPCC report is very honest about the margins of error. Climate change may be less than predicted. But equally it may occur more quickly than the present computer models suggest. Should this happen it would be doubly disastrous were we to shirk the challenge now. I see the adoption of these policies as a sort of premium on insurance against fire, flood or other disaster. It may be cheaper or more cost-effective to take action now than to wait and find we have to pay much more later. ✓

[The need for environmental diplomacy]

We are all aware of the immense challenge. The enormity of the task is not a matter for pessimism. The problems which science has created science can solve, provided we heed its lessons. Moreover, we have already established a structure of international co-operation on the environment to deal with ozone depletion. For the first time ever, rich and poor nations alike set out together to save our planet from a serious danger. This painstaking work culminated in the historic agreement reached in London this year. That agreement is a real beacon of hope for the future.

The main focus in London was on protecting the ozone layer. But the agreement will have other consequences. We should not forget that CFCs are 10,000 times more powerful, molecule for molecule, than carbon dioxide as agents of global warming. But of the other greenhouse gases, carbon dioxide is by far the most extensive and contributes around half the manmade greenhouse warming. All our countries produce it. The latest figures which I have seen show that 26 per cent comes from North America, 22 per cent from the rest of the OECD, 26 per cent from the Soviet Union and Eastern Europe and 26 per cent from the less developed countries.

These figures underline why a joint international effort to curb greenhouse gases in general and carbon dioxide in particular is so important. There is little point in action to reduce the amounts being put into the atmosphere in one part of the world, if they are promptly increased in another. Within this framework the United Kingdom is prepared, as part of an international effort including other leading countries, to set itself the demanding target of bringing carbon dioxide emissions back to this year's level by the year 2005. That will mean reversing a rising trend before that date. ✓

The European Community has also reached a very good agreement to stabilise emissions. I hope that Europe's example will help the task of securing world-wide agreement.

Targets on their own are not enough. They have to be achievable. ✓ Promises are easy. Action is more difficult. For our part, we have worked out a strategy which sets us on the road to achieving the target. We propose ambitious programmes both to promote energy efficiency and to encourage the use of cleaner fuels.

We now require, by law, that a substantial proportion of our electricity comes from sources which emit little or no carbon dioxide. That includes a continuing important contribution from nuclear energy.

Such measures as these - which increasing numbers of countries are adopting - should be seen as part of the premium on that insurance policy which I mentioned. They buy us protection against the hazards of the future: but they also pay dividends even though the gloomier predictions about global warming are not fulfilled - dividends such as less air pollution, lowered acid rain, reduced energy costs.

Mr. Chairman, people may disagree about the effects of increased man-made carbon dioxide in the atmosphere. But everyone agrees that we should keep in healthy condition the forests and seas which absorb and utilise a large part of it here on earth. We would be wise to do that for other reasons too: for the beauty of the forests and the infinite variety of species which inhabit them, and to preserve the food chain and balance of nature in the sea.

That's why we want to contribute to conserving the world's forests, and to planting new ones. Trees help to reduce global warming. We intend to plant more at home: we have just announced our plans to replant one of the ancient forests of England - destroyed in an earlier phase of our history.

We shall offer our expertise and aid funds to help plant and manage forests elsewhere in the world, particularly in tropical countries. A year ago I told the United Nations General Assembly that the United Kingdom would aim to increase its funds for tropical forestry by £100m. We now have 150 projects underway in more than 30 countries.

Our aim is to give the people in those countries a better standard of living by conserving and using the forests than by cutting them down.

[The need for a Global Convention]

But our immediate task this week is to carry as many countries as possible with us, so that we can negotiate a successful framework convention on climate change in 1992. We must also begin work on the binding commitments that will be necessary to make the convention work.

To accomplish these tasks, we must not waste time and energy disputing the IPCC's report or debating the right machinery for making progress. The International Panel's work should be taken as our sign post: and the United Nations Environment Programme and the World Meteorological Organisation as the principal vehicles for reaching our destination.

We will not succeed if we are too inflexible. We will not succeed if we indulge in selfrighteous point-scoring for the benefit of audiences and voters at home. We have to work sympathetically together. We have to recognise the importance of economic growth of a kind that benefits future as well as present generations everywhere. We need it not only to raise living standards but to generate the wealth required to pay for protection of the environment.

It would be absurd to adopt policies which would bankrupt the industrial nations, or doom the poorer countries to increasing poverty. We have to recognise the widely different circumstances facing individual countries, with the better-off assisting the poorer ones as we agreed to do under the Montreal Protocol.

The differences can't be drafted away in that famous phrase so beloved of diplomats "a form of words". They need to be resolved by tolerant and sympathetic understanding of our

-6-

various positions. Some of us use energy more efficiently than others. Some of us are less dependent on fossil fuels. And we each have our own economic characteristics, resources, plans and hopes for the future. These are the realities that we must face if we are to move forward towards a successful conclusion to our negotiations in 1992.

Just as philosophies, religions and ideals know no boundaries, so the protection of our planet itself involves rich and poor, North and South, East and West. All of us have to play our part if we are to succeed. And succeed we must for the sake of this and future generations.

One of our great poets, George Herbert, in his poem on "Man" wrote this:

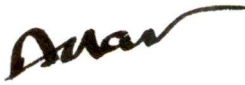
"Man is all symmetry,
Full of proportions, one limb to another, And all to all the
world besides;
Each part may call the farthest, brother; For head with foot
hath private amity,
And both with moons and tides."

We are, in symmetry with nature. To keep that precious balance,
we need to work together for our environment. The United Kingdom
will work with all of you in this cause -to save our common
inheritance for generations yet to come.

THE WHITE HOUSE
WASHINGTON

November 1, 1990

MEMORANDUM FOR GOVERNOR SUNUNU

FROM: D. ALLAN BROMLEY 
SUBJECT: President's Trip to South America

Attached is information on some of the science and technology issues that may be discussed during the President's travels to South America.

You may recall that we had discussed the need for me to go on the President's trips. Since then, we have been assisting National Security Council staff in their preparations. A number of science and technology issues have been identified through this process that will be brought to the attention of the President while he is in South America. Furthermore, I have long standing invitations from Drs. Soberon and Goldemberg (the science advisors of Mexico and Brasil, respectively) to visit them and discuss a number of science and technology issues of mutual interest.

I would be happy to discuss these and other issues surrounding the South America trip with you.

Attachment

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

October 31, 1990

MEMORANDUM FOR D. ALLAN BROMLEY

FROM: J. THOMAS RATCHFORD 

SUBJECT: PRESIDENT'S TRIP TO MEXICO AND LATIN AMERICA

The President will visit Mexico on November 26-27 and five other Latin American countries (Brazil, Chile, Argentina, Venezuela, and Uruguay) in December. Many of these countries, at the most senior levels of government, have identified science and technology as a means to assist in their economic development. The President's trip offers an ideal opportunity to promote and encourage their efforts. Outlined below are a number of key issues, which I have discussed with NSC staff, that should be considered in planning for the trip.

ENVIRONMENT

There are two issues which will be central to the President's discussions on the environment. These are: debt-for-nature swaps as part of the Enterprise for the America's Initiative, and regional environmental institutes as announced at the White House Conference on the Science and Economics of Global Change.

First, one component of the President's Enterprise for the America's Initiative (implementing legislation still pending in Congress) is a provision establishing Enterprise for the Americas Environmental Funds. The Administration is seeking to negotiate an environmental agreement with each country determined eligible for debt reduction. Conclusion of such an agreement would allow the eligible country to make interest payments on new obligations resulting from debt reduction in local currency. The agreement would establish an Environmental Fund to receive interest payments and would determine the operation of the Fund and the use of its resources to provide grants for environmental projects and programs.

Second, at the conclusion of the White House Conference on Global Change, the President endorsed the establishment of three regional environmental institutes based on the IIASA model. An ad hoc working group of the Committee on Earth and Environmental Sciences (CEES) has been developing this concept further. Letters expanding on the idea have been sent to various countries, including Brazil and Mexico. In addition, you have spoken with Drs. Soberon and Goldemberg, and both have expressed great enthusiasm for the concept, especially seeking support for an institute to be co-located in Brazil and Mexico. Other countries in the region, namely Argentina, Chile, and Uruguay, are also interested in hosting the institute. We have been told both by Goldemberg and Soberon that President Collor and President Salinas are likely to raise the issue during their meetings with the President. The CEES working group is developing a draft issue and talking points paper for interagency review through the NSC's Policy Coordinating Committee review process.

SCIENCE AND TECHNOLOGY

Science and technology can play an important supporting role to the President's overall objective of economic development in the region. Many of the countries in the region recognize that their economic development and competitiveness are dependent upon a strong science and technology infrastructure. We have supported their efforts in the past through such mechanisms as the U.S.-Brazil Science and Technology Initiative signed by Presidents Reagan and Sarney in 1986, and umbrella S&T agreements with Mexico, Venezuela, and Brazil. A number of these agreements have expired (Venezuela) or will shortly (Brazil). We could send a strong endorsement for science and technology in the region through the renewal of these agreements, and signing of a new agreement with Chile during or shortly before the President's trip.

Two issues complicate conclusion of umbrella S&T agreements. These are: nuclear non-proliferation and intellectual property rights. A main policy objective of the United States is obtaining agreement from the Argentines, Brazilians, and Chileans to waive into force the Nuclear Non-proliferation Treaty. Some elements of the Administration view S&T agreements as a carrot to award these countries should they waive the treaty into force. This linkage is an important consideration in Administration attitudes toward S&T agreements with these countries. It is important, however, to consider S&T cooperation in a positive context, not just as a reward for good behavior.

With regard to IPR, Brazil, Chile, and Venezuela all suffer from inadequate intellectual property protection in at least some areas of potential S&T cooperation. Nonetheless, we believe that we have reached agreement with USTR and Commerce on language for an IPR annex to S&T agreements which would allow proper protection for intellectual property and which would be acceptable to the Latin countries. The agreements are currently in interagency clearance, but should be ready to present to Brazil, Chile, and Venezuela early next week.

Finally, the Committee on International Science, Engineering, and Technology (CISER) asked its subcommittee on S&T in Developing Economies to identify other mutually beneficial and interesting potential areas for S&T cooperation that might be endorsed during the President's trip, and to prepare a package of supporting programs. They will meet on November 7 to finalize such a package. Some initial ideas from the Department of Health and Human Services (HHS) are attached.

DEBT-FOR-SCIENCE SWAP AND ESTABLISHMENT OF A U.S.-MEXICAN BINATIONAL SCIENCE FOUNDATION

There has been recent discussion both in Congress and within the Administration on the establishment of a U.S.-Mexican Binational Science Foundation which would, among other things, establish an endowment to support debt-for-science swaps with Mexico. The House has passed legislation allowing the Department of State to allocate up to \$20 million of Economic Support Funds (ESF), to be matched by private sector funds from foundations such as MacArthur and Rockefeller, for debt-

swaps with Mexico. Through a swap outside the auction process, already approved for this purpose by the Mexican Minister of Finance, the approximately \$40 million could grow to \$65-70 million. Because of competing interest, however, it is unlikely that the Department of State will allocate any of the ESF for this purpose unless there is a Presidential endorsement.

While the issue of public sector funds is being sorted out, there is no reason that the binational foundation could not be formed. Presidents Bush and Salinas could establish the foundation to bring together private and public sector individuals concerned about maintaining strong and lasting bilateral S&T relations. This would help to focus our cooperation on areas of mutual interest and value and would provide a place for the investment of private sector funds while the issue of public funds is addressed in the United States.

RECOMMENDED ACTION

- 1) Confirm that you will accompany the President at least on the December trip, but possibly also Mexico.
- 2) Ensure that Regional Environmental Institutes are on the President's agenda in Mexico and Brazil and other countries as appropriate. Work with CEES to finalize the President's issue paper and talking points. Speak with Soberon and Goldemberg as needed.
- 3) Work to ensure interagency agreement on language for umbrella agreements with Brazil, Venezuela, and Chile.
- 4) Assist in negotiations of these umbrella agreements through discussions with Goldemberg and counterparts in Venezuela and Chile, and through participation on negotiating teams as needed.
- 5) Send memo to General Scowcroft and the President on the U.S.-Mexican Binational Foundation, suggesting that the President endorse the concept.

Attachment

THE WHITE HOUSE
WASHINGTON

AC HAS SEEN

November 5, 1990

MEMORANDUM FOR GOVERNOR SUNUNU

FROM: D. ALLAN BROMLEY 
SUBJECT: Second World Climate Conference

A preparatory committee completed the latest draft ministerial declaration today. Throughout the discussions the U.S. took a positive tone, while being tough on the issues. Many nations, including the European countries, indicated that they did not want to isolate the U.S.. This is reflected in the substantial revisions and additional language in the final draft that address U.S. concerns.

Attached is a copy of the current draft declaration (Tab A) and a statement from the scientific and technical session that took place from October 29 to November 2 (Tab B). The next session is the November 6 to 7 "ministerial" meeting.

The draft ministerial declaration produced in Geneva in September was used as the basis for changes. The U.S. prepared, alternative draft was circulated along with different alternative drafts from the Saudis, Latin Americans, and Norwegians. Although the U.S. draft was not adopted as the vehicle for changes, it was cited as a good example of language that is more ministerial in tone and content. As a result, much of the technical language in the September draft was dropped and agreements were reached on language which largely satisfies concerns of the U.S. delegation. Some bracketed language troublesome to the U.S. remains, but this is expected to be resolved in the next two days.

The U.S. delegation was successful in some specific areas.

PARAGRAPH 7. The precautionary principle, which requires action irrespective of the level of scientific uncertainty, presented some of the most contentious language. It was essential that the U.S. change the language or it would have been impossible to sign the declaration. The section addressing the precautionary principle has been revised to provide for "cost-effective measures" in the face of scientific uncertainty.

Some specific problems remain in the draft ministerial declaration.

PARAGRAPH 12. The draft contains bracketed language listing the European countries and their concerted "regional" plan to take action on targets and timetables. This isolates the U.S. The Europeans worked hard for this language. In exchange, the U.S. included language in the same paragraph to "acknowledge the initiatives of the United States which will have significant effects on limiting emissions of greenhouse gases." The

U.S. language will be used as a bargaining chip to remove the European community language. Other language in the paragraph reflects points won by the U.S. in negotiations.

PARAGRAPH 15. Language concerning financial resources for developing countries is as follows: "we recommend that adequate and additional financial resources should be mobilized. . ." leaving the process, criteria and characteristics of the resources broad enough that it should not be a problem. However, this is one area which should be monitored through the end of the conference.

PARAGRAPH 21. Bracketed language focuses on reductions in energy-related CO₂ emissions, and could serve to steer away from our efforts to develop the comprehensive approach; however, paragraph 14 appears to counterbalance this CO₂ focus, recommending that "all greenhouse gases, sources and sinks be considered in the most comprehensive manner possible."

PARAGRAPH 28. Bracketed language includes the consideration of the "feasibility of forestry options" as part of the scope of global framework negotiations. The President made a commitment in the Houston G-7 Summit to have a Forestry Convention by 1992. There is a consensus within the Administration that the forestry issue should be put on a different track or it will get bogged down in the climate negotiations, which could extend beyond 1992.

Other issues need to be monitored.

Other paragraphs containing specific U.S. interests that need to be monitored, but which are acceptable at this point, include:

1. Uncertainty issue: Paragraphs 2, 5, 6, and 8.
2. Economics: Paragraph 20.
3. Targets and timetables: Paragraphs 10, 11, 12, and 13.

5 November 1990

DRAFT

DRAFT MINISTERIAL DECLARATION

PREAMBLE

1. We, the Ministers from countries representing the world community met in Geneva, Switzerland, from 6 to 7 November 1990 at the Second World Climate Conference.
2. We note that while climate has varied in the past and there is still a large degree of scientific uncertainty, the rate of climate change predicted by the Intergovernmental Panel on Climate Change (IPCC) to occur over the next century is unprecedented. This is due mainly to the continuing accumulation of greenhouse gases, resulting from a host of human activities since the industrial revolution, hitherto particularly in developed countries. The potential impact of such climate change could pose an environmental threat of an up to now unknown magnitude; and could jeopardize the social and economic development of some areas. It could even threaten survival in some small island States and in low-lying coastal, arid and semi-arid areas.
3. We appreciate the work of the World Climate Programme (WCP) during the past decade which has improved understanding of the causes, processes and effects of climate and climate change. We also congratulate the IPCC, established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) on its First Assessment Report on Climate Change. It has identified causes and possible effects and strategies to limit and adapt to climate change, and in the light of the United Nations General Assembly resolutions, has identified possible elements for inclusion in a framework convention on climate change.
4. Recognizing climate change as a common concern of mankind, we commit ourselves and intend to take active and constructive steps in a global response, without prejudice to sovereignty of States.

I. GLOBAL STRATEGY

5. Recognizing that climate change is a global problem of unique character and taking into account the remaining uncertainties in the field of science, economics and response options, we consider that a global response, while ensuring sustainable development (1) of all countries, must be decided and implemented without further delay based on the best available knowledge such as that resulting from the IPCC assessment. Recognizing further that the principle of equity and the common but differentiated responsibility of countries should be the basis of any global response to climate change, developed countries must take the lead. They must all commit themselves to actions to reduce their major contributions to the global net emissions and enter into and strengthen co-operation with developing countries to enable them to adequately address climate change without hindering their national development goals and objectives. Developing countries must, within the limits feasible, taking into account the problems regarding the burden of external debt and their economic circumstances, commit themselves to appropriate action in this regard. To this end, there is a need to meet the requirements of developing countries, that adequate and additional financial resources be mobilised and the best available environmentally-sound technologies be transferred expeditiously on a fair and most favourable basis.

II. POLICY CONSIDERATIONS FOR ACTION

6. We reaffirm that, in order to reduce uncertainties, to increase our ability to predict climate and climate change on a global and regional basis, including early identification of as yet unknown climate-related issues, and to design sound response strategies, there is a need to strengthen national, regional and international research activities in climate, climate change and sea level rise. We recognize that commitments by governments are essential to sustain and strengthen the necessary research and monitoring programmes and the exchange of relevant data and information, with due respect to national sovereignty. We stress that special efforts must be directed to the areas of uncertainty as identified by the IPCC.

(1) Statement of sustainable development as agreed at the 15th session of UNEP Governing Council, (Agenda 21)

We maintain that there is a need to intensify research on the social and economic implications of climate change and response strategies. We commit ourselves to promoting the full participation of developing countries in these efforts. We recognize the importance of supporting the needs of the World Climate Programme, including contributions to the WMO Special Fund for Climate and Atmospheric Environmental Studies. The magnitude of the problem being addressed is such that no nation can tackle it alone and we stress the need to strengthen international cooperation. In particular, we invite the 11th Congress of the World Meteorological Organization, in the formulation of plans for the future development of the World Climate Programme, to ensure that the necessary arrangements are established in consultation with UNEP, UNESCO (and its IOC), FAO, ICSU and other relevant international organisations for effective coordination of climate and climate change related research and monitoring programmes. We urge that special attention be given to the economic and social dimensions of climate and climate change research.

7. In order to achieve sustainable development in all countries and to meet the needs of present and future generations, precautionary measures to meet the climate challenge must anticipate, prevent, attack, or minimize the causes of, and mitigate the adverse consequences of, environmental degradation that might result from climate change. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent such environmental degradation. The measures adopted should take into account different socio-economic contexts.
8. The potentially serious consequences of climate change, including the risk for survival in low-lying and other small island States and in some low-lying coastal, and arid and semi-arid areas of the world, give sufficient reasons to begin by adopting response strategies even in the face of significant uncertainties.

Such response strategies include phasing out the production and use of CFC's, efficiency improvements and conservation in energy supply and use, appropriate measures in the transport sector, sustainable forest management, afforestation schemes, developing contingency plans for dealing with climate related emergencies, proper land use planning, adequate coastal zone management, review of intensive agricultural practices and the use of [safe and] cleaner energy sources with lower or no emissions of [carbon dioxide and other] greenhouse gases, paying special attention to new and renewable sources.

Further actions should be pursued in a phased and flexible manner on the basis of medium and long-term goals and strategies and at the national, regional or global level, taking advantage of scientific advances and technological developments to meet both environmental and economic objectives.

9. We note that per capita consumption patterns in certain parts of the world along with a projected increase in world population are contributing factors in the projected increase in greenhouse gases.
10. We agree that the ultimate global objective should be to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with climate.
11. We stress, as a first step, the need to stabilize, while ensuring sustainable development of the world economy, emissions of greenhouse gases not controlled by the Montreal Protocol on Substances that Deplete the Ozone Layer. Contributions should be equitably differentiated according to countries' responsibilities and their level of development. In this context, we acknowledge efforts already undertaken by a number of countries to meet this goal.

12. Taking into account that the developed world is responsible for about 3/4 of all emissions of greenhouse gases, we welcome the decisions and commitments [undertaken by many developed countries and a regional economic integration organization] [undertaken by the European Community with its Member States, Australia, Austria, Canada, Finland, Japan, New Zealand, Norway, Sweden, Switzerland, and other developed countries] to take actions aimed at stabilizing their emissions of CO₂, or CO₂ and other greenhouse gases not controlled by the Montreal Protocol, by the year 2000 in general at 1990 level, yet recognizing the differences in approach and in starting point in the formulation of the above targets. [We also acknowledge the initiatives of the United States which will have significant effects on limiting emissions of greenhouse gases.] We urge other developed countries to establish targets and/or feasible national programmes or strategies which will have significant effects on limiting emissions of [CO₂ and other] greenhouse gases not controlled by the Montreal Protocol.
- We acknowledge, however, that those developed countries with as yet relatively low energy consumption (measured on a per capita or other appropriate basis) which can be reasonably expected to grow, and some countries with economies in transition, may establish targets, programmes and/or strategies that accommodate socio-economic growth, while improving the energy efficiency of their economic activities.
13. We urge developed countries, before the 1992 UN Conference on Environment and Development, to analyze the feasibility of and options for, and, as appropriate in light of these analyses, to develop programmes, strategies and/or targets for a staged approach for achieving reductions of [CO₂ and other] greenhouse gas emissions not controlled by the Montreal Protocol, over the next two decades and beyond.
14. We recommend that in the elaboration of response strategies, over time, all greenhouse gases, sources and sinks be considered in the most comprehensive manner possible and also that limitation and adaptation measures be addressed.

15. We recognize that developing countries have as their main priority alleviating poverty and achieving social and economic development and that their net emissions must grow from their, as yet, relatively low energy consumption to accommodate their development needs. Narrowing the gap between the developed and the developing world would provide a basis for a full partnership of all nations and would assist the developing countries in dealing with the climate change issue. To enable developing countries to meet incremental costs required to take the necessary measures to address climate change and sea-level rise, consistent with their development needs, we recommend that adequate and additional financial resources should be mobilized and best available environmentally sound technologies transferred expeditiously on a fair and most favourable basis. Developing countries also should, within the limits feasible, take action in this regard.
16. The specific difficulties of those countries, particularly developing countries, whose economies are highly dependent on fossil fuel production and exportation, as a consequence of action taken on limiting greenhouse gas emissions, should be taken into account.
17. We recommend that consideration should be given to the need for funding facilities, including the proposed World Bank/UNEP/UNDP Global Environmental Facility, a clearing house mechanism and a new possible international fund composed of adequate additional and timely financial resources and institutional arrangements for developing countries; taking into account existing multilateral and bilateral mechanisms and approaches. Such funding should be related to the implementation of the framework convention on climate change and any other related instruments that might be agreed upon. In the meantime, developed countries are urged to co-operate with developing countries to support immediate action in addressing climate change including sea-level rise without imposing any new conditionality on developing countries.
18. We recommend further that resources be assessed. Such assessments, to be conducted as soon as possible, should include country studies and mechanisms to meet the financing needs identified, taking note of the approaches developed under the Montreal Protocol.

19. Financial resources channelled to developing countries should, inter alia, be directed to:
- (i) Promoting efficient use of energy, development of lower and non-greenhouse gas emitting energy technologies and paying special attention to safe and clean new and renewable sources of energy;
 - (ii) Arranging expeditious transfer of the best available environmentally sound technology on a fair and most favourable basis to developing countries and promoting rapid development of such technology in these countries;
 - (iii) Co-operating with developing countries to enable their full participation in international meetings on climate change;
 - (iv) Enhancing atmospheric, oceanic and terrestrial observational networks, particularly in developing countries, to facilitate conducting research, monitoring and assessment of climate change and the impact on those countries;
 - (v) Rational forest management practices and agricultural techniques which reduce greenhouse gas emissions;
 - (vi) Enhancing the capacity of developing countries to develop programs to address climate change, including research and development activities and public awareness and education.

Funding should also be directed to the creation of regional centres to organize information networks on climate change in developing countries.

20. Appropriate economic instruments may offer the potential for achieving environmental improvements in a cost-effective manner. The adoption of any form of economic or regulatory measures would require careful and substantive analyses. We recommend that relevant policies make use of economic instruments appropriate to each country's socio-economic conditions in conjunction with a balanced mix of regulatory approaches.

21. We note that energy production and use account for nearly half of the enhanced radiative forcing resulting from human activities and is projected to increase substantially in the absence of appropriate response actions. We recognize the promotion of energy efficiency as the most cost-effective immediate measure, in many countries, for reducing energy-related emissions of greenhouse gases, [in particular CO₂] while other [safe] options such as no or lower greenhouse gas emitting energy sources should also be pursued. These principles apply to all energy sectors. Transport energy use attracts special attention of many of us in the light of its role in many developed countries and of its expected importance in many developing countries.
22. We recognize that there is no single quick-fix technological option for limiting greenhouse gas emissions. However, we are convinced that technological innovation as well as individual and social behaviour and institutional adaptations is a key element of any long-term strategy that deals with climate change in a way that meets the goal of sustainable development. Therefore, we urge all countries, the developed countries in particular, to intensify their efforts and international cooperation in technological research, development and dissemination of appropriate and environmentally sound technologies, including the reassessment and improvement of existing technologies and the introduction of new technologies.
23. We urge that environmentally sound and safe technologies be utilized by all sectors in all countries to the fullest extent possible and further urge all countries, developed and developing, to identify and take effective measures to remove barriers to the dissemination of such technologies. To this end, the best available environmentally sound and safe technologies should be transferred to developing countries expeditiously on a fair and most favourable basis.

24. We note that the conservation of the world's forests in their role as reservoirs of carbon along with other measures are of considerable importance for global climatic stability, keeping in mind the important role of forests in the conservation of biological diversity and the protection of soil stability and of the hydrological system. We recognize the need to reduce the rate of deforestation in consonance with the objective of sustained yield development and to enhance the potential of the world's forests through improved management of existing forests and through vigorous programmes of reforestation and afforestation, and to support financially the developing countries in this regard through enhanced and well-coordinated international cooperation including strengthening Tropical Forest Action Plan (TFAP) and International Tropical Timber Organization (ITTO). We recommend that the protection and management of boreal, temperate, sub-tropical and tropical forest ecosystems must be well-coordinated and preferably compatible with other possible types of action related to reduction of emission of greenhouse gases, rational utilisation of biological resources, provision of financial resources, and the need for more favourable market conditions for timber and timber products. The developing countries should be able to realize increased revenue from these forests and forest products.
25. We also recognize that forests and forest products play a key social and economic role in many nations and communities. We recognize that States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

26. We recommend that appropriate precautionary and control measures be developed and implemented at regional, sub-regional and country levels as appropriate to counter the increasing degradation of land, water, genetic and other productive resource bases by drought, desertification and land degradation.

Observatories on climate and climate change and observatories on ecosystems should be encouraged to work together on drought risks consequences.

Studies must be undertaken on drought and desertification.

We stress that stepped-up financial and scientific contributions be provided to facilitate these efforts.

27. We recommend that similar measures be adopted to address the particular problems and needs, including funding, of low-lying coastal and small vulnerable island countries, some of whose very existence is placed at risk by the consequences of climate change.

III. GLOBAL FRAMEWORK CONVENTION ON CLIMATE CHANGE

28. We call for negotiations on a framework convention on climate change to begin without delay after a decision is taken by the 45th Session of the General Assembly of the United Nations recommending ways, means and modalities for further pursuing these negotiations. Taking note of all the preparatory work, particularly the recommendations adopted 26 September 1990 by the Ad hoc working group of government representatives and regional economic integration organizations to prepare for negotiations on a framework convention on climate change, we urge all countries and regional economic integration organizations to join in these negotiations and recognize that it is highly desirable that an effective framework convention on climate change, containing appropriate commitments, and any related instruments as might be agreed upon on the basis of consensus, be signed in Rio de Janeiro during the United Nations Conference on Environment and Development. We welcome the offer of the Government of the United States of America to host the first negotiating meeting. [We also welcome the invitations of Thailand and Italy to host workshops, respectively on the feasibility of forestry options, and on energy technologies and their transfer to developing countries.]

29. We recommend that such negotiations take account of the possible elements compiled by the IPCC, and that the framework convention on climate change be framed in such a way as to gain the support of the largest possible number of countries while allowing timely action to be taken. We reaffirm our wish that this convention contain real commitments by the international community. We stress, given the complex and multi-faceted nature of the problem of climate change, the need for new and innovative solutions including the need to meet the special needs of developing countries.
30. We believe that a well-informed public is essential for addressing and coping with as complex an issue as climate change, and the resultant sea-level rise, and urge countries, in particular, to promote the active participation at the national and when appropriate, regional levels of all sectors of the population in addressing climate change issues and developing appropriate responses. We also urge relevant United Nations organizations and programmes to disseminate relevant information with a view to encouraging as wide a participation as possible.

Meynard

SECOND WORLD CLIMATE CONFERENCE
SCIENTIFIC & TECHNICAL
PORTION

S&T/SWCC/No.: 13

SECOND WORLD CLIMATE CONFERENCE

CONFERENCE STATEMENT
SCIENTIFIC/TECHNICAL SESSIONS

FOREWORD

1. The Second World Climate Conference was convened in Geneva, Switzerland, from 29 October through 7 November, 1990, under the sponsorship of the World Meteorological Organization; the United Nations Environment Programme; the United Nations Educational, Scientific, and Cultural Organization and its Intergovernmental Oceanographic Commission; the Food and Agriculture Organization; and the International Council of Scientific Unions. This Statement was adopted by the participants in the scientific and technical sessions from 29 October to 3 November 1990, on the basis of the presentations at the Conference, the deliberations of task groups of participants organized to address various problem areas, and plenary discussions involving all participants. The scientific and technical sessions involved more than 700 participants from over 100 countries.

2. The Conference discussed the results of the first decade of work under the World Climate Programme (WCP), the First Assessment Report of the Intergovernmental Panel on Climate Change (August, 1990) and the development of the International Geosphere-Biosphere Programme (IGBP) and other relevant global programmes. In particular, the Conference considered the role, priorities, and programme structure for the future development of the World Climate Programme.

SUMMARY STATEMENT

1. Climate issues reach far beyond atmospheric and oceanic sciences, affecting every aspect of life on this planet. The issues are increasingly pivotal in determining future environmental and economic well-being. Variations of climate have profound effects on natural and managed systems, the economies of nations and the well-being of people everywhere. A clear scientific consensus has emerged on estimates of the range of global warming which can be expected during the 21st century (paragraph B). If the increase of greenhouse gas concentrations is not limited, the predicted climate change would place stresses on natural and social systems unprecedented in the past 10,000 years.

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2. At the First World Climate Conference in 1979, nations were urged "to foresee and to prevent potential man-made changes in climate that might be adverse to the well-being of humanity". This Conference concludes that, notwithstanding scientific and economic uncertainties, nations should now take steps towards reducing sources and increasing sinks of greenhouse gases through national actions and negotiation of a global convention on climate change, and related legal instruments, with the long-term goal of halting the build-up of greenhouse gases at a level that minimizes risks to society and natural ecosystems. A major international observational and research effort will be essential to strengthen the knowledge-base on climate processes and human interactions, and to provide the basis for operational climate monitoring and prediction. The remaining uncertainties must not be the basis for deferring societal response to these risks. Many of the actions that would reduce risk are also desirable on other grounds.

PART I. MAIN CONCLUSIONS AND RECOMMENDATIONS

A. Greenhouse Gases and Climate Change

1. Emissions resulting from human activities are substantially increasing atmospheric concentrations of the greenhouse gases. These increases will enhance the natural greenhouse effect, resulting on average in an additional warming of the Earth's surface. The Conference agreed that this and other scientific conclusions set out by the IPCC reflect the international consensus of scientific understanding of climate change. Without actions to reduce emissions, global warming is predicted to reach 2 to 5 degrees C over the next century, at a rate of change unprecedented in the past 10,000 years. The warming is expected to be accompanied by a sea level rise of 65 cm + 35 cm by the end of the next century. There remain uncertainties in predictions, particularly in regard to the timing, magnitude and regional patterns of climate change.

2. Climate change and sea level rise would seriously threaten low-lying islands and coastal zones. Water resources, agriculture and agricultural trade, especially in arid and semi-arid regions, forests, and fisheries are especially vulnerable to climate change. Climate change may compound existing serious problems of the global mismatch between resources, population and consumption. In many cases the impacts will be felt most severely in regions already under stress, mainly in developing countries.

3. Global warming induced by increased greenhouse gas concentrations is delayed by the oceans; hence, much of the change is still to come. Inertia in the climate system due to the influence of the oceans, the biosphere and the long residence times of some greenhouse gases means that climate changes that occur may persist for centuries.

4. Natural sources and sinks of greenhouse gases are sensitive to a change in climate. Although many of the response or feedback processes are poorly understood, it appears likely that, as climate warms, these feedbacks will lead to an overall increase rather than a decrease in greenhouse gas concentrations.

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5. The historical growth in emissions has been a direct consequence of the increase of human population, rising incomes, the related exploitation of fossil fuels by industrialized societies and the expansion of agriculture. Under "business-as-usual" assumptions*, it is projected that emissions will continue to grow in the future as a consequence of a projected doubling of energy consumption in the first half of the 21st century and an expected doubling of population by the latter half. As a result, the effect of human-induced greenhouse gas concentrations on the earth's radiation balance would by 2025 correspond to a doubling of carbon dioxide unless remedial actions are taken.

6. Over the last decade, emissions of carbon dioxide (CO₂) contributed 55% of the increased radiative forcing produced by greenhouse gases from human activities. The CFCs contributed about 24% of the past decade's changes, and methane 15%, with the balance due to other greenhouse gases. With controls on CFCs, the relative importance of CO₂ emissions will increase, provided the substitutes for CFCs have minimal greenhouse warming potential. Some 75% of total CO₂ emissions have come from the industrialized countries.

7. The above emissions can be expected to change the planet's atmosphere and climate, and a clear scientific consensus has been reached on the range of changes to be expected. Although this range is large, it is prudent to exercise, as a precautionary measure, actions to manage the risk of undesirable climate change. In order to stabilize atmospheric carbon dioxide concentrations by the middle of the 21st century at about 50% above pre-industrial concentrations, a continuous world-wide reduction of net carbon dioxide emissions by 1 to 2% per year starting now would be required. The Intergovernmental Panel on Climate Change (IPCC) also considered three other emissions scenarios, which would not lead to stabilization of CO₂ concentrations in the 21st century. A 15-20% reduction in methane emissions would stabilize atmospheric concentrations of that gas.

8. This Conference concludes that technically feasible and cost-effective opportunities exist to reduce CO₂ emissions in all countries. Such opportunities for emissions reductions are sufficient to allow many industrialized countries to stabilize CO₂ emissions from the energy sector and to reduce these emissions by at least 20 percent by 2005. The measures include increasing the efficiency of energy use and employing alternative fuels and energy sources. As additional measures to achieve further cost-effective reductions are identified and implemented, even greater decreases in emissions would be achieved in the following decades. In addition, reversing the current net losses in forests would increase storage of carbon. The economic and social costs and benefits of such measures should be urgently examined by all nations. An internationally coordinated assessment should be undertaken through the IPCC.

* "Business-as-usual" assumes that few or no steps are taken to limit greenhouse gas emissions. Energy use and clearing of tropical forests continue and fossil fuels, in particular coal, remain the world's primary energy source. The Montreal protocol comes into effect but without strengthening and with less than 100 percent compliance.

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9. Countries are urged to take immediate actions to control the risks of climate change with initial emphasis on actions that would be economically and socially beneficial for other reasons as well. Nations should launch negotiations on a climate change convention and related legal instruments, without delay and with the aim of signing such a convention in 1992.

B. Use of Climate Information in Assisting Sustainable Social and Economic Development

Climate data, analyses, and eventually climate predictions can contribute substantially to enhancing the efficiency and security of economic and developmental activities in environmentally sustainable ways. These benefits are particularly important in food and wood production, water management, transportation, energy planning and production (including assessment of potential resources of biomass, hydropower, solar and wind energy), urban planning and design, human health and safety, combatting of drought and land degradation, and tourism. This requires both data on the climate system, and its effective application. Data acquisition, collection, management and analysis must be more vigorously supported in all countries and special assistance provided to developing countries through international cooperation. Transfer of techniques for applying climate information should be accelerated through more widespread use of software (e.g. CLICOM) for readily available personal computers and other means. Further development of methods for predicting short-term variations in climate and the environmental and social impacts should be vigorously pursued. These advances would provide enormous economic and other welfare benefits in coping with droughts, prolonged rain, and periods of severe hot and cold weather. Such predictions will require major steps forward in ocean-atmosphere-biosphere observing systems. Much greater efforts are needed to increase involvement in these fields by developing countries, especially through increased education and training.

C. Priorities for Enhanced Research and Observational Systems

1. A consensus exists among scientists as summarized in the Report of Working Group I of the IPCC that climate change will occur due to increasing greenhouse gases. However, there is substantial scientific uncertainty in the details of projections of future climate change. Projections of future regional climate and climate impacts are much less certain than those on a global scale. These uncertainties can only be narrowed through research addressing the following priority areas:

- clouds and the hydrological cycle
- greenhouse gases and the global carbon and biogeochemical cycles
- oceans: physical, chemical and biological aspects; and exchanges with the atmosphere
- paleo-climatic studies
- polar ice sheets and sea ice
- terrestrial ecosystems.

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2. These subjects are being addressed by national programmes, the World Climate Research Programme and the International Geosphere-Biosphere Programme. Increased national support and substantially increased funding of these programmes is required if progress on the necessary time scale is to be made in reducing these uncertainties.
3. Present observational systems for monitoring the climate system are inadequate for operational and research purposes. They are deteriorating in both industrialized and developing regions. Of special concern is the inadequacy of observation systems in large parts of the southern hemisphere.
4. High priority must be placed on providing high-quality, long-term data for climate-related studies. Data should be available at no more than the cost of reproduction and distribution. A full and open exchange of global and other data sets needed for climate-related studies is required.
5. There is an urgent need to create a Global Climate Observing System (GOOS) modelled on the World Weather Watch Global Observing System and the Integrated Global Ocean Service System and including both space-based and surface-based observing components. GOOS should also include the data communications and other infrastructure necessary to support operational climate forecasting.
6. GOOS should be designed to meet the needs for:
 - (a) climate system monitoring, climate change detection and response monitoring, especially in terrestrial ecosystems
 - (b) data for application to national economic development, and
 - (c) research towards improved understanding, modelling and prediction of the climate system.
7. The main components of such a GOOS would be:
 - (1) an improved World Weather Watch Programme;
 - (2) the establishment of a global ocean observing system (GOOS) of physical, chemical and biological measurements;
 - (3) the maintenance and enhancement of monitoring programmes of other key components of the climate system, such as the distribution of important atmospheric constituents (including the Global Atmosphere Watch), changes in terrestrial ecosystems, clouds and the hydrological cycle, the earth's radiation budget, ice sheets, and precipitation over the oceans.
8. The further development and implementation of the GOOS concept should be pursued with urgency by scientists, governments and international organizations. All countries must ensure a full and open exchange of the data sets needed for climate system research, process and impact studies, and modelling.

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9. The impacts of climate variability on human socio-economic systems have provided major constraints to development. Climate change may compound these constraints. In semi-arid regions of Africa, drought episodes have been directly responsible for major human disasters. Research undertaken during the first decade of the WCP and through other international and national programmes has improved drought early warning systems including FAO's Global Early Warning System and increased the reliability of climate impact analyses. But much more remains to be done. Intensified efforts are required to refine further our ability to predict short-term climate variability, anticipate climate impacts, and identify rational strategies to mitigate or prevent adverse effects. The threat of climate change brings new challenges to the future well-being of people. This requires greater efforts to understand impacts of climate change. Mitigation and adaptation strategies are also essential. Immediate steps to be taken include:

- (a) national and regional analyses of the impacts of climate variability and change on society, and study of the range of response and adaptation options available.
- (b) closer co-operation and communication among natural and social scientists, to ensure that climate considerations are accounted for in development planning.
- (c) significant increases in resources to carry out impact/adaptation studies.

10. Improvements in energy efficiency and non-fossil fuel energy technologies are of paramount importance, not only to reduce greenhouse gas emissions but to move to more sustainable development pathways. Such advances will require research and development, as well as technology transfer and co-development.

11. A specific initiative would create a network of regional, interdisciplinary research centres, located primarily in developing countries, and focussing on all of the natural science, engineering and social science disciplines required to support fully integrated studies of global change and its impacts. The centres would conduct research and training on all aspects of global change and study the interaction of regional and global policies.

D. Public Information

People need better information on the crucial role climate plays in development and the additional risks posed by climate change. Governments, intergovernmental and non-governmental organizations should give more emphasis to providing accurate public information on climate issues. The public information and education and training component in the WCP and IGBP must also be expanded.

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PART II

Specific Issues:

1. Water

1.1 Among the most important impacts of climate change will be its effects on the hydrological cycle and water management systems, and through these, on socio-economic systems. Increases in incidence of extremes, such as floods and droughts, would cause increased frequency and severity of disasters.

1.2 The design of many costly structures to store and convey water, from large dams to small drainage facilities, is based on analyses of past records of climatic and hydrological parameters. Some of these structures are designed to last 50-100 years or even longer. Records of past climate and hydrological conditions may no longer be a reliable guide to the future. The design and management of both structural and non-structural water resource systems should allow for the possible effects of climate change.

1.3 Data systems and research must be strengthened to predict water resources impacts, detect hydrological changes, and improve hydrological parameterization in global climate models.

1.4 Transfer of existing and novel technologies, for more efficient use of water for irrigation, should be made available to developing countries in semi-arid zones.

2. Agriculture and Food

2.1 Important uncertainties remain regarding the prediction of the magnitude and nature of potential impacts of changing climate and higher CO₂ levels on global food security. The potential impact on food production in developing countries (with more than half the world's population) could be more uncertain than recent reviews suggest.

2.2 High priority should therefore be given to research on the direct effects of rising CO₂ concentrations on food and fibre crop productivity and equal priority should be given to research on agricultural emissions so as to determine agriculture's present and potential role as a source of and sink for greenhouse gases, and to clarify the costs and possible trade-offs arising from limitation measures.

2.3 New or strengthened institutional mechanisms are required to upgrade natural resource inventories, research strategies and extension services to raise agricultural productivity and minimize emissions. These mechanisms should include collaborative programmes between FAO and international and national agencies with stress on interdisciplinary activities on the food security implications.

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3. Oceans, Fisheries, and Coastal Zones

3.1 Shorter term variations in the earth's climate are determined by the coupled ocean - atmosphere system. Coastal zones and their associated high biological productivity, including fisheries, are especially affected. Thus, an improved data base of oceanic parameters is considered indispensable for operational climate forecasting. It is recommended that a global ocean observing and data management system be developed for improving predictions of climate change. Research on the ocean will provide quantification of the feedback loops in climate processes. Observation and research on the El Niño - Southern Oscillation phenomena, on upwelling areas and on biological productivity of the open sea are also important.

3.2 Coastal zones, which are the source of most of the global fish catch, are especially susceptible to effects of global warming and sea level rise. Predicting the impact of changes would be of enormous benefit to the increasing number of people living in coastal areas. Thus, it is also recommended that a programme of coastal zone research and monitoring be established to identify the effects of climate change on the coast and coastal ecosystems, and to assess the vulnerability of various natural and managed ecosystems such as coral reefs, mangroves and coastal aquaculture.

3.3 Action should be taken now to develop coastal zone adaptation strategies and policies.

4. Energy

4.1 In order to stabilize atmospheric concentrations of greenhouse gases while allowing for growth in emissions from developing countries, industrialized countries must implement reductions even greater than those required, on average, for the globe as a whole. However, even where very large technical and economic opportunities have been identified for reducing energy-related greenhouse gas emissions, and even where there are significant and multiple benefits associated with these measures, implementation is being slowed and sometimes prevented by a host of barriers. These barriers exist at all levels -- at the level of consumers, energy equipment manufacturers and suppliers, industries, utilities, and governments. Overcoming the barriers obstructing least-cost approaches to meeting energy demands will require responses from all parts of society -- individual consumers, industry, governments, and non-governmental organizations.

4.2 Developing countries also have an important role in limiting climate change. Maintaining development as a principal objective, energy and development paths can be chosen that have the additional benefit of reducing radiative forcing.

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5. Land Use and Urban Planning

Population growth, increasing urbanization, and competing demands for finite areas of arable land will produce increasingly severe problems of food supply, energy production, and water resources. Climate changes may exacerbate these problems in some regions. Prudent planning will require baseline analyses of land use, quality and quantity of water resources, and the vulnerability of urbanized societies to environmental change. In particular, improved adaptation of urban areas to local climatic regimes needs to be achieved by more appropriate design of their layouts and building densities, and of building construction through modifications of building and planning regulations. Because conurbations make a major contribution to energy-related greenhouse gas emissions, the design and efficiency of all aspects of urban systems should be enhanced.

6. Health and Human Dimensions

6.1 The direct impact of climate change on people, their health and cultural heritage, could be severe. There is likely to be increased health inequity between peoples of developing and developed countries. Climatic change could result in creating environmental refugees with associated increases of ill-health, disease and death among them.

6.2 Global warming is likely to shift the range of favourable conditions for certain pests and diseases, causing additional stresses on people, particularly those of the semi-arid tropics. It must be appreciated however that serious problems may arise in all parts of the world.

6.3 Research into how human behaviour contributes to and responds to climate change must have increased emphasis. Public awareness and education programmes are particularly essential in this regard.

7. Environment and Development

7.1 Climate change, superimposed on population pressures, excessive consumption, and other stresses on the environment imperils the sustainability of socio-economic development throughout the world. In addition, slowing climate change will give countries more time to enhance their prospects for sustainable development. The developed countries need to reduce emissions and assist the developing countries to adopt new, clean technologies.

7.2 Climate change has such important implications for the sustainability of development that policy responses, including measures to reduce greenhouse gases, measures to reduce deforestation, and the commitment of financial and other resources, are justified for that reason alone. Economic policies, such as subsidies and trade restraints, can distort markets so they harm the environment and contribute to global warming and sea level rise. There is an imperative need for development policies that not only reduce global warming trends but also increase economic and social resilience.

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8. Forests

While increasing forest cover can contribute to the slowing of global climate change, this is not the major cure for the problem.

Five priority actions are recommended:

Firstly, assessing national opportunities to increase forest carbon storage commensurate with national resource development policies, developing an approach by 1992 and completing assessment by 1995.

Secondly, managing the world's forests to optimize biomass and resultant carbon storage in addition to the maintenance of sustainable yields of forest products, biological diversity, water quality and the many other values that forests provide.

Thirdly, accelerating research to assess the added contribution that forests can make to atmospheric CO₂ reduction and the impacts of climate change on the world's forests.

Fourthly, designing and implementing international monitoring systems to determine conditions and changes in forest ecosystems in response to anticipated climate changes.

Finally, supporting the development of a proposed international instrument on conservation and development of the world's forest linked with the proposed climate and biodiversity conventions.

PART III

Organizational and Policy Issues for International Activities

1. The future structure of the WCP

1.1 The organizational framework for international scientific research is in place, constituted by the WCRP, emphasizing the physical aspects, and the IGEP, covering bio-geochemical aspects.

1.2 The World Climate Data Programme, renamed the World Climate System Monitoring Programme, should be redefined to take into account new objectives.

1.3 Additional elements of the new WCP (WCP-2) should cover adaptation and mitigation, and education.

1.4 Governments should establish national committees for the WCP to mobilize support for national activities and to coordinate efforts. The UN agencies and ICSU should work towards ensuring regular contact and exchange of information with national committees.

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1.5 The mechanism established for overall coordination of the WCP, involving meetings of the chairs of steering bodies for the various components, should be actively supported by WMO, the other UN bodies concerned and ICSU. Annual meetings of Executive Heads should consider their recommendations.

1.6 Restructuring and strengthening of the WCP will also be necessary to support new activities, such as the development of the proposed GOOS. The Conference recommended that a proposal for the new structure of WCP be formulated and presented to the Eleventh World Meteorological Congress, May 1991, and at appropriate meetings of other participating agencies.

2. Special needs of the developing countries

2.1 As stated in the IPCC report, industrialized and developing countries have a common but differentiated responsibility for dealing with the problems of climate change. The problem is largely the consequence of past patterns of economic growth in the industrial countries. However, in future the much needed economic growth in the developing countries could play an important role in determining the rate of climate change.

2.2 Developing countries are being asked to participate in the alleviation of the legacy of environmental damage from prior industrialization. If they are to avoid the potentially disastrous course followed by industrialized countries in the past, they need to adopt modern technologies early in the process of development, particularly in regard to energy efficiency. They also must be full partners in the global scientific and technical effort that will be required. It is clear that developing countries must not go through the evolutionary process of previous industrialization but rather, must "leapfrog" ahead directly from a status of under-development through to efficient, environmentally benign, technologies presently found only in the most advanced industrial economies.

2.3 Although developing countries have collaborated in providing data, and participated to a degree in meetings and research, they have benefited to a lesser extent from the analyses developed from their contributions, and even less so from the applications derived therefrom.

2.4 Therefore, a massive and sustained flow of scientific and technological expertise towards the development of the intellectual resources, technical and institutional capacity of the developing countries is a necessary complement to the efforts of those countries.

2.5 Developing countries should be assisted to build up their capabilities

- to monitor, assess and apply climate information;
- to prepare inventories of greenhouse gases emissions and future emissions projections;
- to identify impacts of potential global warming;

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- to prepare cost estimates and priorities for response strategies to adapt and mitigate problems posed by climate change;
- to participate in the World Climate Programme.
- o The mechanisms of the transfer of technology and provision of technical assistance and co-operation to developing countries should take into account considerations such as the need for preferential and assured access, intellectual property rights, the environmental soundness of such technology and the financial implications.
- o Taking note that industry plays a significant role in the development and transfer of science and technology, efforts by industry to promote further the development and transfer of environmentally sound technologies should be encouraged, and policies to encourage such efforts should be formulated.
- o Additional financial resources will have to be channelled to developing countries for those activities which contribute both to limiting greenhouse gas emissions and/or adapting to any adverse effects of climate change, and promoting economic development. Areas for co-operation and assistance could include the efficient use of energy, land use planning, forest management, soil and water conservations, strengthening of observational systems and scientific and technological capabilities.

3. Co-operation in international research

3.1 The existing and planned research projects of the WCRP and the IGBP address the highest priority scientific issues related to the understanding and prediction of climate variability and change.

3.2 These programmes should be implemented completely and rigorously. It is particularly important that adequate funding including long term funding be provided.

3.3 In view of the progress made in climate research, it is now timely to proceed to the detailed design of an operational global climate observing system, together with the data communications and other infrastructure needed to support operational climate forecasting. Governments should enter into early discussions aimed at international cooperation in operational climate forecasting and climate change research.

4. Co-ordinated International Activities

4.1 The Conference endorsed the three streams of international activity:

- a. continuing global measurement and research efforts through the WCP, IGBP, and other related international programmes.

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- b. Assessment functions of a continuing IPCC to support negotiation and administration of a Convention.
- c. Development of a Convention on Climate Change for governmental action.

4.2 The UN Conference on Environmental and Development (Brazil 1992) provides a valuable opportunity to relate the above three themes to all the other environment/development issues and objectives being examined by the Conference. It is therefore essential that the three streams should interact effectively with UNCED.

4.3 It is proposed that the sponsoring agencies for the SWOC consider the possibility of holding a Third World Climate Conference at an appropriate time about 2000 AD.

5. Policy Development

5.1 The development of policy regarding climate change requires on the part of policy makers an understanding of the underlying science and a weighing of the scientific uncertainties associated with the prediction of climate change and its likely impacts. An important aspect of future work is therefore a continued dialogue between scientists and policy makers.

5.2 It is essential that all parties to any Convention and related legal instruments should, under its obligations, participate fully in the free exchange and flow of information necessary for the development and technical input of the convention. Such a convention should include a technical annex to provide for:

- International co-operation in research, systematic observation and exchange of related information;
- Adjustments based on up-dates of scientific knowledge;
- Strengthening national scientific and environmental capabilities of developing countries.

**EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS**

February 6, 1991

To: Gov. Sununu

From: Michael J. Boskin *mjb*

Here are the talking points on Global Climate Change that Senator Simpson gave out at the policy lunch yesterday.

**Michael J. Boskin
Chairman**

SENATE RESOLUTION ON GLOBAL CLIMATE CHANGE

FIRST
TALKING
PTS

- The focus in the resolution CO2 alone doesn't make environmental sense. What matters for the environment is total net emissions of all greenhouse gases. Beyond that, man-made (anthropogenic) emissions account for only 4 % of the global CO2 flux. So one cannot ignore natural sources and sinks of CO2 as well. We should take a comprehensive approach that includes all sources and sinks.

- While other countries have made rhetorical commitments to targets and timetables at various international meetings, the U.S. HAS ALREADY TAKEN SEVERAL MAJOR LEGISLATIVE AND ADMINISTRATIVE ACTION STEPS TO REDUCE GREENHOUSE GAS EMISSIONS.

- U.S. Action Steps Include:

- Legislation to *phase out fully the production of CFC's* and other major ozone-depleting chemicals. In fact, under the Clean Air Act, the U.S. will phase out these chemicals on a faster schedule than required by the amended Montreal Protocol.

- A *tax on CFC production* (enacted in the Reconciliation bill of 1989) which will result in a faster phase-out than any other country. Already, in the last year, the U.S. has reduced CFC production to 23% below what is required by the Protocol.

- Major reductions in not only SO2 but also CO2 from electric utilities under the Clean Air Act. By enacting a bill that included a cap on SO2 emissions at sharply reduced levels, and freedom of choice for utilities in how to make the reductions, *the Clean Air bill created a powerful incentive for conservation in the electric utility sector*.

- The *Clean Air Act* will also sharply reduce emissions of carbon monoxide, nitrogen oxides, volatile organic compounds, and other greenhouse gases or greenhouse gas precursors.

- The President's program to *plant a billion trees per year* (not fully funded by the Congress in 1991) has the potential to reduce net emissions of greenhouse gases by 50 million tons of carbon equivalent by 2010.

- DOE has already issued *standards requiring energy efficiency in household appliances* such as refrigerators, freezers, clothes washers and dryers, and dishwashers, the biggest users of energy in the home aside from heating. The National Energy Strategy will include further recommendations for building efficiency and lighting efficiency.

- The Administration is increasing funding for *R&D into energy technologies* that will reduce greenhouse gases. This includes support for nuclear power, electric battery-powered cars, solar photovoltaics, and alternative fuels.

- In total, because of these policy *actions* by the U.S. government, EPA estimates that U.S. greenhouse gas emissions in 2000 will be below what they were in 1987 (or today). Very few other countries can make a similar claim.

- In addition, the U.S. has the world's largest program of scientific research to support sound policymaking on global climate change. Funded this year at \$1 billion, the U.S. effort comprises about 50% of the worldwide total being spent to investigate this problem.

- In fact, since 1973, U.S. CO2 emissions have been essentially stable (they have increased by 2.7% in a decade and a half), at a time when U.S. GNP has grown by almost 50%. During this time of stable U.S. emissions, worldwide CO2 emissions have grown sharply. The problem cannot be solved with CO2 reductions from the industrialized countries alone; *all countries must be involved*.

TALKING POINTS ON MITCHELL GLOBAL WARMING RESOLUTION

1) THE DRAFT RESOLUTION CIRCULATED BY THE ENVIRONMENT COMMITTEE STAFF MAKES SEVERAL STATEMENT WHICH ARE CERTAINLY NOT BASED ON SCIENTIFIC CONSENSUS. FOR INSTANCE, THE RESOLUTION STATES THAT CARBON DIOXIDE HAS BEEN RESPONSIBLE FOR OVER HALF THE ENHANCED GREENHOUSE EFFECT IN THE PAST AND IS LIKELY TO REMAIN SO IN THE FUTURE. THERE IS NO SCIENTIFIC AGREEMENT ON THIS.

THE RESOLUTION STATES THAT MANY SCIENTIFIC STUDIES SHOW THAT RAPID GLOBAL WARMING COULD CREATE PRECIPITOUS CLIMATE CHANGES. VARIOUS COMPUTER MODELS SHOW SCENARIOS FOR TEMPERATURE INCREASES. SOME OF THEM ARE EXTREME AND SOME OF THEM ARE MILD.

THE RESOLUTION STATES THAT THE U.S. EMITS MORE CARBON DIOXIDE THAN ANY OTHER NATION AND HAS THE HIGHEST PER CAPITA EMISSIONS OF CARBON DIOXIDE. THIS DATA DOES NOT TAKE INTO ACCOUNT THAT EAST GERMANY AND WEST GERMANY WERE CONSIDERED SEPARATELY, AND THOSE COUNTRIES ARE NOW COMBINED AND IT DOES NOT MENTION THE SIGNIFICANT CONTRIBUTION MADE BY THE SOVIET UNION.

THE RESOLUTION CALLS FOR A STATEMENT THAT IT IS THE POLICY OF THE UNITED STATES TO SPECIFY REDUCTIONS IN THE NATIONAL EMISSIONS OF CARBON DIOXIDE AND OTHER GREENHOUSE

GASES BY A DATE CERTAIN. THIS WOULD BE A UNILATERAL REDUCTION AND WOULD NOT BE CONDITIONAL ON PROGRESS BY OTHER INDUSTRIALIZED COUNTRIES.

THE RESOLUTION ALSO IGNORES THE FACT THAT PASSAGE OF THE CLEAN AIR ACT WILL ALSO SIGNIFICANTLY REDUCE GREENHOUSE GASES SUCH AS CHLOROFLOUROCARBONS, METHANE AND OTHER VOLATILE CHEMICALS.

THE RESOLUTION DOES NOT SAY HOW WE SHOULD REDUCE CARBON DIOXIDE AND DOES NOT INDICATE THAT WE SHOULD SUPPORT NON-POLLUTING TECHNOLOGIES SUCH AS NUCLEAR ENERGY.

THE PRESIDENT HAS PROPOSED A COMBINED PRIVATE-PUBLIC SECTOR INITIATIVE TO PLANT A BILLION TREES PER YEAR FOR FIVE YEARS WHICH WILL HELP ABSORB CARBON DIOXIDE. THE PRESIDENT HAS PROPOSED THAT A GLOBAL FORESTRY CONVENTION BE NEGOTIATED AS SOON AS POSSIBLE IN ORDER TO CUT DEFORESTATION -- WHICH MAY BE A LARGER PROBLEM THAN INDUSTRIAL EMISSIONS. AND I BELIEVE THAT THE PRESIDENT IS COMMITTED TO DEALING WITH THIS PROBLEM IN A COMMON SENSE MANNER ONCE THE SCIENTIFIC DATA OUTLINES A CLEAR PICTURE FOR THE POLICY MAKERS.

WE HAVE A GLOBAL WARMING CONFERENCE COMING UP FEBRUARY 4TH -- BUT I THINK WE NEED TO BE CAREFUL ABOUT THE WORDING OF THIS RESOLUTION AND WE NEED TO ENSURE THAT WE DO NOT LOCK

OURSELVES INTO ANY SPECIFIC REQUIREMENTS BEFORE WE KNOW ALL THE FACTS.

THE WHITE HOUSE

WASHINGTON

January 23, 1991

MEMORANDUM FOR ROGER B. PORTER

FROM: TERESA GORMAN

SUBJECT: Follow-up Meeting on Negotiation Strategy on
Global Climate Change

This afternoon, Allen Bromley convened a meeting with White House staff and Bob Reinstein from the Department of State to examine the strategy related issues raised in our meeting with the Governor. The following summarizes the key points made at the meeting. We should receive more information from State during the day.

Meeting Structure

- o The first day of the meeting will consist of welcome ceremonies and the resolution of administrative issues. The meeting will be run by the U.N. Secretariat out of New York. Later on, the Secretariat from Geneva is expected to take over.
- o The initial hope -- that the U.N. President would make the opening statement -- has fallen through and there is now uncertainty as to who will formally open the meeting. Bromley reported that he now expects to air a short tape of the President at the meeting.
- o The key administrative issues to be resolved during this first meeting will be the election of the Chairman; the selection of the rules of procedure; and the establishment of subgroups.
- o The only serious contender for the slot is a Frenchman. State regards his selection as a small plus in that he has better than average support from developing countries.
- o The Secretariat is expected to recommend that the Convention use the General Assembly rules from the U.N. State regards this as a major problem that will ultimately have to be resolved in a legal subgroup.
- o The most important administrative issue in the first meeting will be the establishment of working subgroups. State has already proposed to other nations the establishment of three subgroups:

1. Mitigation and Adaptation In State's view, this group would look at all sources and sinks of greenhouse gases. They believe the group would provide a structured, and ultimately more controllable forum for countries to raise proposals to stabilize or reduce emissions.

The key to forming this subgroup is to preempt single-pollutant or single-source subgroups from forming (such as forestry, energy, or carbon dioxide) that could undermine the comprehensive approach. State believes that Japan may chair this subgroup.

2. Implementation Issues: This subgroup would focus on economics and would provide a forum for developing countries to request funding and technology transfer. This subgroup is expected to dissolve into a North - South debate.

3. Science: This subgroup would focus on the scientific questions surrounding global warming. The U.S. is likely to be the chair of this subgroup.

- o According to Reinstein, many OECD countries appear supportive of this subgroup categorization scheme. The single greatest source of resistance is the Department of Energy. Energy believes that the science should be directly linked to any debate over mitigation and implementation issues.

U.S. Strategy/Coalition Building

The short-term strategy for the Administration is to achieve the most beneficial procedural rules and subgroup formations. State did not have sufficient information yet to isolate the countries that will oppose this subgroup categorization scheme.

State affirmed rumors that the European countries will press for commitments on timetables and targets. In contrast, developing countries will resist emission reduction commitments unless they are accompanied by significant financial commitments and technology transfer. Developing countries will also seek a ten-year grace period under any convention/protocol similar in nature to the grace period agreed to in the Montreal Protocol.

The biggest strategical fear going into this meeting is that the Europeans will cut a deal with developing countries. In exchange for committing to timetables and targets,

developing countries would receive European support for financial assistance and a delay in compliance.

According to Bob Reinstein, the European countries may support the comprehensive approach as a long-term strategy, but will seek commitments on carbon dioxide in the near-term. The rationale is that we are in a position to act quickly on carbon dioxide while the control of other pollutants, such as methane, will take considerably longer.

State did not have sufficient information on country positions to provide a detailed road-map of alliance and coalition building that will be necessary to succeed. Bob promised to provide more specific information tomorrow.

The most interesting aspect of this meeting was the discussion over how the U.S. should defend its position during the Framework Convention meetings. Mike Deland argued, without opposition, that the U.S. needs to publicly recognize global warming as a problem, and to state that we have committed to sufficient actions to achieve stabilization. They all strongly supported the brochure as an important tactical defense.

While the State Department continues to affirm its opposition to timetables and targets, it is clear that they foresee a time when the U.S. will have to change this position. Once this happens, State believes that the U.S. would offer its action plan and challenge other nations to design equally stringent action plans. The shortcoming of this approach is that eventually people will want an index to measure and compare the effectiveness of various action plans. This will lead to the selection of a base-year and to commitments for reductions off this base-year.

The near-term question is how much does our advocacy for the comprehensive approach lead us naturally into a position where we agree to trade top-down commitments for acceptance of the comprehensive approach. Many may question why the U.S. is so insistent on the comprehensive approach if all it wants to do is research and not reduction commitments.

A second subtlety in this discussion is the de-emphasis of the scientific uncertainty. If our public posture is structured around a recognition of the problem and a brochure showing our achievements, we have shifted the debate to the level of control and not whether to control. Our main defense against more serious control measures than becomes cost.

While I do not oppose the brochure, it appears as if our message, and perhaps our position, is getting fuzzy.

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DRAFTED BY OES/EGC: JEFF MIOTKE

APPROVED BY OES/EGC: STEPHANIE S KINNEY

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FOLLOWING STATE 012638 DATED JAN 13 SENT ACTION
ALL DIPLOMATIC POSTS JEDDAH BEING REPEATED
FOR YOUR ACTION

QUOTE

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ALSO FOR USEC/USOECN/USIAEA

E.O. 12356: N/A

TAGS: SENV, KSCA

SUBJECT: FRAMEWORK CONVENTION ON CLIMATE CHANGE: OPENING
SESSION

REF: (A) 91 STATE 6080; (B) 90 STATE 436419

FOR DCM AND ECON/SCI COUNSELORS AT OOB

1. THIS IS AN ACTION CABLE.

2. SUMMARY: REFTELS CONVEY COPIES OF U.N. INVITATION AND
INFORMATION NOTE FOR THE OPENING SESSION OF NEGOTIATIONS
ON A FRAMEWORK CONVENTION ON CLIMATE CHANGE, WHICH TAKE
PLACE IN WASHINGTON, D.C., FEBRUARY 4-14. THIS CABLE ASKS
POSTS TO CONVEY TO APPROPRIATE HOST COUNTRY OFFICIALS U.S.
VIEWS ON THE OPENING SESSION OF NEGOTIATIONS AND REPORT ON
HOST COUNTRY RESPONSES. TALKING POINTS ARE PROVIDED IN
PARA 5.
END SUMMARY

3. BACKGROUND: IN KEEPING WITH UN RESOLUTION 45/212,
NEGOTIATIONS ON A FRAMEWORK CONVENTION ON CLIMATE CHANGE
WILL BE CARRIED OUT UNDER THE AUSPICES OF THE UNITED

NATIONS GENERAL ASSEMBLY, SUPPORTED BY THE WORLD
METEOROLOGICAL ORGANIZATION (WMO) AND THE U.N. ENVIRONMENT
PROGRAM (UNEP). THE UNITED STATES IS PLEASED TO PROVIDE
THE VENUE FOR THE FIRST NEGOTIATING SESSION AND IS WORKING
CLOSELY WITH APPROPRIATE UNITED NATIONS OFFICIALS TO
ENSURE THAT ARRANGEMENTS FOR THE MEETING CONFORM TO U. N.
STANDARDS AND COMMON PRACTICE. WE EMPHASIZE THAT THE
UNITED NATIONS IS RESPONSIBLE PURSUANT TO UNGA RESOLUTION
45/212, FOR ORGANIZING AND CONVENING THE FIRST NEGOTIATING

SESSION (NOT THE USG: THE USG IS SIMPLY PROVIDING THE
VENUE FOR THE SESSION, PURSUANT TO THE INVITATION OF
PRESIDENT BUSH. TO FACILITATE COMMUNICATION BETWEEN THE
U.N. SECRETARIAT IN NEW YORK AND HOST COUNTRY OFFICIALS
PARTICIPATING IN THE FRAMEWORK CONVENTION NEGOTIATIONS,
THE U.S. WILL CONTINUE TO PROVIDE POSTS WITH COPIES OF
OFFICIAL U.N. SECRETARIAT COMMUNICATIONS, SUCH AS THOSE
CONVEYED REFTELS. WE HOPE TO RECEIVE SOON FROM THE U.N. A

PROVISIONAL AGENDA AND INSTRUCTIONS ON HOW DEVELOPING
COUNTRIES SHOULD APPLY FOR TRAVEL ASSISTANCE.

4. ACTION REQUESTED: IN ADDITION TO FACILITATING
COMMUNICATION BETWEEN THE U.N. SECRETARIAT AND HOST
COUNTRIES ON LOGISTICAL ARRANGEMENTS, POSTS ARE REQUESTED
TO DEMARCHE TALKING POINTS PROVIDED BELOW, WHICH CONVEY
U.S. VIEWS ON THE OPENING SESSION, AND REPORT ON HOST
COUNTRY RESPONSES AS QUICKLY AS POSSIBLE.

5. --THE UNITED STATES IS PLEASED TO PROVIDE THE VENUE FOR
THE OPENING SESSION OF NEGOTIATIONS ON A FRAMEWORK
CONVENTION ON CLIMATE CHANGE, WHICH, IN CONFORMANCE WITH
U.N. RESOLUTION 45/212, WILL BE CONDUCTED UNDER THE
AUSPICES OF THE UNITED NATIONS GENERAL ASSEMBLY WITH THE
SUPPORT OF WMO AND UNEP.

--TO FACILITATE COMMUNICATION WITH THE U.N. SECRETARIAT IN
NEW YORK AND HOST COUNTRY OFFICIALS, THE UNITED STATES HAS
PROVIDED COPIES OF THE LETTER OF INVITATION FROM SECRETARY
GENERAL PEREZ DE CUELLAR AND AN INFORMATION NOTE DATED
JANUARY 4.

--WE WILL CONTINUE TO TRANSMIT COPIES OF ALL OFFICIAL
COMMUNICATIONS FROM THE SECRETARIAT AS SOON AS THEY ARE
RECEIVED IN WASHINGTON. WE HOPE TO RECEIVE SOON COPIES OF
THE PROVISIONAL AGENDA AND INSTRUCTIONS FOR DEVELOPING
COUNTRIES WHO WISH TO APPLY FOR TRAVEL ASSISTANCE.

--WE EMPHASIZE THAT THIS IS AN UNOFFICIAL SUPPLEMENT TO THE
OFFICIAL COMMUNICATION, WHICH IS A UN RESPONSIBILITY AND

WHICH HAS BEEN DIRECTED TO GOVERNMENTS THROUGH THEIR
MISSIONS IN NEW YORK.

--ON A BILATERAL BASIS, THE UNITED STATES SEEKS AN EXCHANGE
OF VIEWS ON OUR INTERESTS AND EXPECTATIONS FOR THE UPCOMING
NEGOTIATING SESSION.

--WE NOTE THE DECISION OF DELEGATES TO THE SEPTEMBER
ORGANIZATIONAL MEETING HELD IN GENEVA THAT GOVERNMENT
REPRESENTATIVES SHOULD SELECT OFFICERS FOR THE
NEGOTIATIONS. WE ALSO RECALL THAT IT WAS DECIDED THAT NO
NEGOTIATING TEXT SHOULD BE TABLED BEFORE THE FIRST SESSION
AND THAT DURING THE NEGOTIATIONS NO MORE THAN TWO MEETINGS
SHOULD BE SCHEDULED SIMULTANEOUSLY IN ORDER TO FACILITATE
INTERPRETATION IN SIX LANGUAGES.

--IN KEEPING WITH THESE RECOMMENDATIONS, THE UNITED STATES
BELIEVES THAT A FIRST ORDER OF BUSINESS SHOULD BE THE
ELECTION OF OFFICERS OF THE BUREAU AND THE ESTABLISHMENT
OF AN AD HOC SECRETARIAT. WE FAVOR JEAN RIPERT OF FRANCE
AS CHAIRMAN OF THE NEGOTIATIONS AND BELIEVE THAT IT WOULD
BE HELPFUL FOR U.N. OFFICIALS TO CONSULT BROADLY BEFORE

NAMING THE HEAD OF THE AD HOC SECRETARIAT FOR THE
NEGOTIATIONS. FYI: WE DO NOT KNOW WHAT CANDIDATES ARE
BEING CONSIDERED BY THE SECRETARY GENERAL FOR THIS
POSITION. END FYI

--ONCE OFFICERS ARE ELECTED AND THE AGENDA IS APPROVED, WE
ANTICIPATE THAT DELEGATIONS WILL MAKE COUNTRY STATEMENTS.
WE BELIEVE THAT IT WOULD HELP FACILITATE DEVELOPMENT OF A
DRAFT NEGOTIATING DOCUMENT IF COUNTRY STATEMENTS INDICATED
NATIONAL VIEWS ON POSSIBLE ELEMENTS OF A FRAMEWORK
CONVENTION, AS OUTLINED IN THE IPCC LEGAL MEASURE PAPER.
WHAT ARE YOUR VIEWS ON THIS MATTER?

--WE EXPECT THAT THE ESTABLISHMENT OF SUBGROUPS WILL

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GENERATE LIVELY DEBATE AND STAND READY TO WORK WITH OTHER DELEGATIONS TO DEVELOP A CONSENSUS ON THIS MATTER. IN OUR VIEW, WE SHOULD HAVE NO MORE THAN FOUR SUBGROUPS, SINCE THERE WILL BE INTERPRETATION FOR ONLY TWO MEETINGS AT A TIME.

--THE U.S. IS CONSIDERING SUBGROUPS STRUCTURED ALONG THE FOLLOWING LINES: A) ONE ON SCIENTIFIC AND ECONOMIC RESEARCH AND MONITORING, INCLUDING COOPERATION AND INFORMATION EXCHANGE, WHICH WE BELIEVE ARE ESSENTIAL TO MAKING SOUND POLICY DECISIONS; B) A SECOND TO ENCOURAGE CONSIDERATION OF COMPREHENSIVE RESPONSES RELATED TO

EMISSIONS OF ALL GREENHOUSE GASES, THEIR SOURCES AND SINKS; C) A THIRD TO DISCUSS IMPLEMENTATION ISSUES SUCH AS EMISSIONS TRADING, TECHNOLOGY DEVELOPMENT AND TRANSFER, FINANCE, AND PUBLIC EDUCATION IN A CONTEXT THAT ENSURES

INTEGRATION OF THESE ITEMS INTO OVERALL RESPONSE STRATEGIES.

FYI: THE STRUCTURE OUTLINED ABOVE WAS RECOMMENDED BY DOS AS A LOGICAL DIVISION AMONG SUBGROUPS; POSTS SHOULD BE AWARE THAT THIS ISSUE IS STILL IN THE INTERAGENCY CLEARANCE PROCESS. END FYI

-- WHAT ARE YOUR THOUGHTS ON SUBGROUPS?

--THE U.S. BELIEVES THAT A KEY OBJECTIVE OF THE FIRST SESSION WILL BE TO DEVELOP A BRACKETED NEGOTIATING TEXT. FOR THAT REASON, WE ALSO FAVOR THE ESTABLISHMENT OF A LEGAL DRAFTING COMMITTEE.

FYI: POSTS SHOULD EMPHASIZE THAT WE DO NOT SEE THE LEGAL DRAFTING COMMITTEE AS A NEGOTIATING BODY. END FYI

--IN OUR VIEW, THE LEGAL DRAFTING COMMITTEE SHOULD NOT DEVELOP THE TEXT, BUT RATHER IT SHOULD RECEIVE SUBSTANTIVE INPUTS FROM THE PLENARY AND THE SUBGROUPS. WE EXPECT THAT THE PLENARY AND/OR SUBGROUPS WOULD WANT TO HAVE A THOROUGH DISCUSSION OF THE IPCC LEGAL MEASURES PAPER AND OTHER RELEVANT DOCUMENTS AND THEN PROPOSE SUBSTANTIVE LANGUAGE TO HELP GUIDE THE LEGAL DRAFTING GROUP WITH ITS WORK.

--WE WOULD APPRECIATE YOUR THOUGHTS ON HOW THE DRAFT NEGOTIATING TEXT SHOULD BE DEVELOPED.

--WE LOOK FORWARD TO WELCOMING YOUR DELEGATION TO WASHINGTON IN FEBRUARY AND HOPE THAT YOU WILL NOT HESITATE

TO CONSULT WITH US ON ANY MATTERS OF CONCERN.

- BARTHOLOMEW
UNQUOTE BAKER

Country Targets and Timetables

Australia

Cabinet announced target 11 October of stabilizing CO₂, CH₄, N₂O at 1988 levels by 2000, reducing 20 percent by 2005, provided no net adverse effect on Australian competitiveness if other major developed nations do not take similar actions.

Austria

Urged at February IPCC plenary that industrialized countries stabilize by 2000 as first step; no specific domestic target set.

Belgium

Said at IEA meeting in July that it had begun taking actions that would lower emissions, but had not yet conducted the analysis necessary to justify establishing a target. Supported US position at Bergen.

Brazil

President Collor noted in June World Environment Day speech the need for specific commitments for the stabilization and reductions of CO₂ emissions per capita. He implied, but did not explicitly state, that he was referring foremost to the fossil fuel emissions of developed countries.

Canada

Pledged in June to stabilize CO₂ at 1988 levels by 2005.

China

Strongly implies that it favors targets for developed countries, opposes them for LDCs. Projects substantial CO₂ emissions growth.

Denmark

National energy plan calls for 20 percent CO₂ reduction by 2005.

EC Commission

Favors stabilization of CO₂ at 1990 levels by year 2000, significant reduction by 2005.

Finland

Urged at IPCC February plenary that industrialized countries stabilize by year 2000 as first step, no specific domestic target set.

France

Proposed in September a three-tiered global strategy to converge per capita CO2 emissions rates by early 21st century. Under this plan, France would stabilize its emissions at or below 2.0 tons per capita by 2000 (up to a 10 percent increase from current levels), provided that other major industrialized countries agree to stabilize their emissions.

Germany

Cabinet announced in June non-binding commitment to reduce CO2 emissions 25 percent from 1987 levels in former West German area by 2005.

India

Opposes targets for developing countries.

Israel

Opposes targets.

Italy

Supports stabilization of CO2 at 1990 levels by 2000 as part of EC-wide initiative. No domestic target set.

Japan

Announced action plan 19 October to stabilize CO2 emissions per capita at 1990 levels by 2000. Methane emissions will also be capped at current levels. Gross CO2, N2O, and other greenhouse gas emissions will be stabilized by 2000 if feasible.

Malta

Supports targets and timetables; no domestic target set.

Mexico

Appreciates unilateral commitments by industrialized countries to stabilize emissions by 2000. Believes obligations should be equitably differentiated according to

countries' respective responsibilities for causing and combatting climate change and their level of development.

Netherlands

Parliament passed in September revised National Environmental Policy Plan, calling for stabilization of CO2 emissions at 1989-90 average by 1994-95, 3 to 5 percent reduction by 2000. Government officials describe commitment as binding.

New Zealand

Environment minister announced plans in September to reduce CO2 emissions 20 percent from 1990 levels by 2005.

Norway

National goal is stabilization at 1987 levels by 2000, provided other countries take similar actions.

Portugal

Opposes targets.

Saudi Arabia

Favors stabilization by 2000 target for industrialized countries; no domestic target set.

Spain

Would support EC stabilization target if scaled to current per capita emissions so as to be equitable among EC members.

Sweden

Parliamentary mandate to stabilize CO2 at 1988 levels. Supported call at IPCC February plenary for stabilization by 2000.

Switzerland

Urged at IPCC February plenary that industrialized countries stabilize emissions by year 2000 as first step; no domestic target set.

United Kingdom

Prime Minister Thatcher announced in May that the UK would enact a strategy to achieve a stabilization of CO2 emissions at 1990 levels by 2005, provided other major industrialized countries take similar steps.

USSR

Opposes targets.

Venezuela

Opposes targets.

Note: Only the government of the Netherlands describes its target as binding.

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
06. Memo	From D. Allan Bromley to POTUS Re: Global Climate Change Status Report (3 pp.)	12/21/90	P5	

Collection:

Record Group: Bush Presidential Records
Office: Chief of Staff, White House Office of
Series: Sununu, John, Files
Subseries: Issues Files
WHORM Cat.:
File Location: Global Warming 1991 [3]

Open on Expiration of PRA
(Document Follows)
By JP (NLGB) on 4/21/08

Date Closed:	1/4/2005	OA/ID Number:	29159-002
FOIA/SYS Case #:	1998-0004-F[2]	Appeal Case #:	
Re-review Case #:	2005-0426-S	Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

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- P-1 National Security Classified Information [(a)(1) of the PRA]
- P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
- P-3 Release would violate a Federal statute [(a)(3) of the PRA]
- P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
- P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
- P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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- (b)(1) National security classified information [(b)(1) of the FOIA]
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- (b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
- (b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
- (b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
- (b)(9) Release would disclose geological or geophysical information

THE WHITE HOUSE

WASHINGTON

December 21, 1990

90 DEC 27 AM 8:59

MEMORANDUM FOR THE PRESIDENT

FROM: D. ALLAN BROMLEY *AW*

SUBJECT: Global Climate Change Status Report

This memo is to provide you with a status report on global climate change with regard to the most recent scientific conclusions as well as my estimate of the U.S. position in the world community with respect to this issue.

(1) The present status of knowledge concerning the science of global climate change

The report from the scientific session of the Second World Climate Conference (SWCC) in Geneva last month (747 participants, 120 countries) provides a good summary of the information upon which most countries are basing their discussions as well as their policies and decisions regarding global climate change issues.

o The SWCC agreed that the scientific conclusions set out by the IPCC reflect the international consensus of scientific understanding of climate change.

A few examples of their specific conclusions:

o "Emissions resulting from human activities are substantially increasing atmospheric concentrations of the greenhouse gases. These increases will enhance the natural greenhouse effect, resulting on average in an additional warming of the Earth's surface."

o "Without actions to reduce emissions, global warming is predicted to reach 2 to 5 degrees C over the next century, a rate of change unprecedented in the past 10,000 years."

o "The warming is expected to be accompanied by a sea level rise of 65 cm $\pm$ 35 cm by the end of the next century."

o The Conference noted that, as stated in the IPCC Report, there is substantial scientific uncertainty in the details of predictions of climate change. To narrow the uncertainties, the Conference recommended enhanced research and observational systems for a number of high priority research areas (e.g., oceans, clouds, carbon cycle, polar ice sheets and sea ice).

Your U.S. Global Change Research Program (including space observations of the Earth by EOS) is carrying out key research on these important topics.

(2) The present position of the U.S. in the world community on global climate change issues.

Background - The past year:

o Over the past year, our approach to the global climate change issue has been viewed as cautious in contrast to most other countries who have been publicly willing to commit to specific targets and timetables for reducing greenhouse gas emissions, regardless of cost or lack of economic uncertainties. I remain convinced that many of these countries have no idea as to how they plan to achieve their commitments or what the cost might be. We have continued to insist that we should be taking actions that are justified for other reasons (an insurance policy, if you will).

o While our approach toward any specific plans or strategies (timetables and percentages) for stabilization of CO₂ and other greenhouse gases has been factually well-justified, it has, unfortunately, been poorly-understood and our motives have been badly misconstrued. In fact, we have not called for any specific targets to date because of the lack of sufficient reliable economic information available to us to craft any realistic plan.

o This past year, at several highly-visible, high-level meetings on climate change, such as that at Noordwijk last November, the U.S. - along with most other major powers - have signed statements, which, in principle, agree that stabilization of CO₂ emissions should be achieved as soon as possible and that "such stabilization should be achieved by..industrialized nations.. as soon as possible, at levels to be considered by the IPCC and the Second World Climate Conference of November 1990".

o By the time of the SWCC last month, the U.S. had become further isolated on the global climate change issue because just prior to the start of the Ministerial portion of the Conference, Japan, Australia and even the EC announced plans for stabilization of CO₂ emissions. The U.S. was viewed as the last hold-out among the industrialized countries not willing to propose a definite plan with timetables and percentages for the stabilization or reduction of its greenhouse emissions.

o After much skillful negotiating by the U.S. delegation at the preparatory meetings, and later, in the Ministerial meeting, all of the five major issues of concern to the U.S. (to which I referred in my memo to you of October 26), were negotiated in such a way as to favorably reflect our position on each issue. This was quite a feat given the political environment at the conference. Much credit was given to John Knauss, Administrator of the National Oceanic and Atmospheric Administration and Robert Reinstein, Deputy Assistant Secretary for Oceans and International Environmental and Scientific Affairs (Department of State), for their outstanding work at the conference.

(3) Where do we go from here?

o I am convinced that we must have a well-defined position for the U.S. to take to the table at the first negotiating session of the Climate Change Convention (which the United States will host in nearby Chantilly, Virginia in early February 1991) which will include a strategy for stabilizing or reducing greenhouse gas emissions.

o I do not believe that we can credibly state that we are waiting for the science; the IPCC science report is now out and represents the consensus of the international scientific community.

o The good news is that a number of our recent US interagency activities, many of which are being coordinated under the DPC Global Change Strategy Task Force, are in the process of developing and compiling important new information on this issue which, combined with results of analyses of benefits from actions we are already taking, such as the Clean Air Act, may soon make it possible to propose a strategy toward an economically-feasible, realistic plan regarding U.S. greenhouse gas emissions.

o The EPA and DOE, for example, have calculated that the policies that you have already put in place will enable us to hold our US greenhouse gas emissions in the year 2000 to the value they had in 1987. While others have made more extensive promises for future action, we in the US, under your leadership, have been taking specific actions. But we have failed to get this message across either to the international community or to our own environmental activists who keep insisting that we are "dragging our feet" or alleging that we are urging "research instead of action".

o To correct this notion and to help put the U.S. squarely back in a strong leadership position in the international global change arena, the members of the Global Change Strategy Task Force under the DPC are presently putting together a plan outlining how we in the U.S. will address the issue of greenhouse gas emission reduction - based upon emissions reductions achieved by present and planned Administration policies.

o We obviously have much hard work to do between now and the start of the February negotiations, but it is an important issue to us both scientifically and politically. I firmly believe that we will be able to make progress on both fronts over the next few months and that we will be in a position to present credible options to you for your decision prior to the February sessions.