Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01. Memo	From Roger Porter to John Sununu Re: Global Climate Convention (1 pp.)	5/2/89	P-5	

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: Climate Change, White House Conference on Global (1990) [3]

Open on Expiration of PRA
(Document Follows)
By JF (NLGB) on 5/12/05

Date Closed:	12/8/2004	**OA/ID Number:**	29150-004
FOIA/SYS Case #:	1998-0004-F[1]	**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

Presidential Records Act - [44 U.S.C. 2204(a)]

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]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

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(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

May 2, 1989

MEMORANDUM FOR GOVERNOR SUNUNU
BRENT SCOWCROFT

FROM: ROGER B. PORTER RBP

SUBJECT: Global Climate Convention

The President's upcoming meetings with Norwegian Prime Minister Brundtland, Canadian Prime Minister Mulroney, and French President Mitterrand have created pressure within the Administration to make a decision on whether to support the development of an international convention on climate change. The pressure is attributable to concern that the President risks losing the initiative on the environment issue if he does not stake out an early position supporting framework negotiations.

I believe that the risks of entering into framework negotiations are sufficiently great that the decision should be delayed the few days it will take to complete a thorough options paper. That paper is in the final stages of refinement within the Domestic Policy Council's Working Group on Energy, Environment, and Natural Resources.

The main problem with agreeing to discuss a framework for a convention on global climate change is that scientific evidence does not yet indicate what form such a convention should take. Entering into discussions on a framework would be a major, threshold step. No matter how limited, the process could become uncontrollable and could result in international pressure for the U.S. to sign a protocol which is not based on sound science and could have a serious impact on the U.S. economy.

I recognize that we may face considerable pressure to participate in discussing a framework. However, it is important that the President have all the analysis before him when he makes a decision.

I recommend that the issue not be taken to the President until later this week, when an interagency options paper will be available. In the meantime, attached are suggested talking points for the President's meetings with Prime Ministers Brundtland and Mulroney.

Attachment:
Talking Points on Climate Change

PRESIDENT'S MEETINGS WITH
PRIME MINISTERS BRUNDTLAND AND MULRONEY

Global Climate Change

TALKING POINTS

-- As you know, I am strongly committed to preserving the quality of the world's environment.

-- My Administration has already taken several bold steps, on ozone depletion (CFCs), hazardous waste, and ocean dumping. My FY1989 budget includes some $200 million to fund research on global climate change. Many of these research activities are being conducted cooperatively with other countries.

-- Other steps will clearly be needed. We are now, for example, preparing legislative proposals on a new clean air act.

-- But we must not let our actions get ahead of the scientific analysis of the problems. This could happen on global climate change.

-- The Intergovernmental Panel on Climate Change (IPCC) is now looking at the scientific evidence, and will report in November, 1990.

-- My Administration is now studying ways to begin international discussions on a framework for a convention on global climate change. But these must be ways that do not put the cart before the horse. The cost of imposing unneeded restrictions on the world's economy would be enormous.

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02. Memo	Re: Proposed Major Presidential Address on the Environment (4 pp.)	5/2/89	~~P-5~~	

Collection:

Open on Expiration of PRA
(Document Follows)
By JP (NLGB) on 5/12/05

Record Group: Bush Presidential Records
Office: Chief of Staff, White House Office of
Series: Sununu, John, Files
Subseries: Issues Files
WHORM Cat.:
File Location: Climate Change, White House Conference on Global (1990) [3]

Date Closed:	12/8/2004	**OA/ID Number:**	29150-004
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AR Disposition:		**MR Disposition:**	
AR Disposition Date:		**MR Disposition Date:**	

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May 2, 1989

MEMORANDUM

Re: Proposed Major Presidential Address on the Environment

Administrator Reilly's idea of the President making a major address on the environment is a good one. However, I disagree with the idea of a full blown "State of the Environment" speech. We must learn to manage expectations better. Or, to put it another way, we must apply the "Sununu Principle" of overpromising in campaigns and underpromising in government.

I. POLITICAL RATIONALE FOR A SPEECH

The kind of activist stance the Administrator proposes -- and embodies -- is crucial to the success of this Administration. The argument for a major Presidential address on the environment is this: we must not rest on our laurels. We must stay on the offensive by shifting the agenda to those issues that allow us to seize the constituencies of our opponents.

The environment is an issue which has, broadly speaking, been captured by the other side. It is one of a couple of issues in which the GOP has a chance to take back lost ground and garner new support.

Theodore Roosevelt knew this when he made the most of the environment issue. By shifting the agenda to this and other issues, TR avoided the seemingly inevitable decay that affects the incumbent President's party, especially after multiple terms in the White House during times of peace and prosperity.

Reilly is quite right when he emphasizes a pro-active approach. Traditionally, Republicans drag their feet on "progress." Thus, when "progress" is finally enacted, the GOP gets no political credit. Reilly's point about injecting "some solid Republican environmentalism" is exactly the sort of agressive stance we need to see in the Cabinet.

(more)

II. DANGERS OF RAISING EXPECTATIONS WITH A "STATE OF THE ENVIRONMENT" ADDRESS

As noted above, I disagree with Reilly on the idea of billing an environmental address as a "State of the Environment" address because of my concern over heightening expectations too much.

We have the Exxon Valdez incident dragging us down. It will take us awhile to "get better." This is not the time to build up expectations. Quiet action should precede promises of success.

The aim should be to make the speech(es) a pleasant surprise rather than a flat anticlimax to a big buildup. The news should read the next day that President Bush unveiled some "new good ideas" on the environment, rather than some "half-measures" that did not live up to their advance billing.

We are already seeing the cost of expectations buildup on the specific issue of Clean Air Act emissions reductions targets. Leaks from all parties have indicated specific tonnage targets that we may or may not be able to achieve. We want to avoid a big letdown.

III. IDEAS FOR PROPER FORUMS FOR THE SPEECH

The forums proposed are good. I especially like the idea of interjecting what Reilly calls "solid Republican environmentalism" into one of the two gubernatorial races of 1989, New Jersey. The commencement speeches are a good venue for broaching the subject.

However, Mitterand's presence at Boston University may necessitate a foreign policy speech (although, of course there are a great many international environmental issues that could be discussed).

We should also consider the Coast Guard Academy in New London, Ct. It is New England, and the Coast Guard, as we have seen in Alaska, has an important role in safeguarding the environment.

(more)

I would even suggest consideration of a sixth commencement speech, somewhere in the Pacific Northwest. Recall that the President did poorly last November from Santa Barbara to the Canadian border, with the environment being a chief concern.

IV. EVALUATION OF SPECIFIC INITIATIVES FOR THE SPEECH

As regards Reilly's seven specific proposals for initiatives to broach in a major environmental address, I evaluate them as follows, and add an additional initiative as a suggestion:

1) Clean Air

I agree that the Clean Air proposal is the sine qua non of our credibility on the environment issue.

2), 4) Framework Convention on Climate Change/International Conference on the Environment

International cooperation on the environment is a good thing yet I worry about setting up the President for broad multinational agreements. Roger Porter recalls the unhappy precedent of the Law of the Sea Conference, as an example of what can happen when the rest of the world gets to fiddle with our national sovereignty.

There are so many global conferences that it is not as necessary to convene one as it is to simply go to one and say that this is the President's global conference.

3) Debt-for-Nature

This is precisely the kind of "new idea" that would enable us to take the offensive on the environment.

5) Wetlands

This is a low-cost initiative.

6) Pollution Prevention

Again, this has the appeal of being an innovative, pace-setting set of ideas.

(more)

7) Vision

If we have laid out a good track record, then a year or two now, when we are out from under the gun of Valdez, then we will have the credibility to step back and take credit for our achievement. We should also strive to accomodate the President's interest in citizen involvement. See the President's marginal note on tree planting on page four of Reilly's speech text.

Until then, better to see Reilly testing the political climate and playing the expectations game than the President.

Additional Free Suggestion: A New Policy Reflecting the "Lessons of Exxon Valdez"

The President should take a leadership role in announcing a plan for sanctions for future oil spills. I personnally suggest fines and/or criminal liability for future mishaps.

#

United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, DC 20510-6175

5/1/89

M E M O R A N D U M

TO: President George Bush

FROM: Senator John H. Chafee

SUBJECT: seizing the opportunity to become the world leader on global climate change caused by the greenhouse effect

The Opportunity

By announcing several bold, new initiatives in the next few days you can seize the role of international leader on global climate change issues and bolster your image as an environmental President.

Not taking this opportunity will leave others to fill that role and could be cited by the press and others as evidence that your commitment to the environment is not as strong as we have been saying it is. Letting this opportunity pass would be especially troubling in light of the fact that (1) other countries are preparing to push for negotiation of an international convention on protection of the global climate and (2) the U.S. will have to take a position on this issue in the next few days, prior to next week's meeting of the Intergovernmental Panel on Climate Change, even if you do not decide to take a leadership role at this time.

Timing

The opportunity and the need for quick action are a result of (1) the meeting of the Intergovernmental Panel on Climate Change scheduled to begin May 8 in Geneva and (2) seven other major international meetings between now and November that will include discussion of global climate change issues.

In recent months, your counterparts from several countries have been jockeying for position as "the international leader" on these issues. For example, just last week, Prime Minister Thatcher and six Members of her Cabinet attended an extraordinary 6 and 1/2 hour seminar devoted to the greenhouse effect. Press reports from London stated that the Prime Minister wants to take the lead in addressing this environmental threat and that a "wait and see policy" is not acceptable to her.

A Plan

I suggest you put together a plan which includes three main components:

first, announce this week, before next week's meeting of the Intergovernmental Panel on Climate Change, that you are calling for the negotiation of an international convention on protection of the global climate and that you want to see the proposal discussed at (1) next week's meeting in Geneva, (2) the July 15 G7 economic summit, and (3) all upcoming international conferences on climate issues, including the May 15 UN Environment Programme Governing Council meeting, the Japan Conference on Global Climate scheduled for September, and the Netherlands Ministerial Conference on Climate set for November;

second, announce the establishment of an interagency task force to develop and implement a national energy policy that will reduce emissions of carbon dioxide; and

third, send a clear signal to everyone that you believe we know enough to act now and that we cannot afford the risk that comes with a "wait and see policy." The scientists are telling us that if we wait for scientific proof, it will be too late to respond. The arguments being made against action at this time are reminiscent of the early days of the acid rain debate. We cannot afford a repeat of that process.

The first and second components are discussed more fully below.

Background

The threat of massive, uncontrolled global climate change caused by the release of greenhouse gases such as carbon dioxide, chlorofluorocarbons (CFCs), and methane is receiving ever increasing international attention.

The predicted environmental impacts of the greenhouse effect include:
- an increase in the global average temperature of 1.5 to 5.5° C (2.7 to 9.9° F) over the next 40 to 60 years (to be compared with an increase of less than 3° F over the last 10,000 years);
- the extinction of numerous species of plants and animals and significant interference with natural evolutionary responses;
- reduced soil moisture content and altered storm patterns that may seriously disrupt the U.S. agricultural industry; and
- a rise in sea level of 1 to 4 feet over the next 60 years.

The likely socio-economic and political impacts of the greenhouse effect are expected to be equally severe.

Calling for the Negotiation of an International Convention

At next week's meeting of the Intergovernmental Panel on Climate Change, one or more countries are expected to argue that there is a need for negotiation of a convention on protection of the global climate. The Domestic Policy Council is in the process of developing a U.S. position for those discussions. Your intervention at this time is crucial. If the advocates of a "go slow, wait and see policy" prevail now, a major opportunity to promote environmental concerns will be lost.

By immediately issuing a call for the negotiation of an international convention on protection of the global climate, you will position yourself as a leader in this area. There is considerable support for development of a global climate convention. Last year, forty-two Senators wrote to President Reagan urging him to issue such a call. A copy of that letter dated March 31, 1988, is attached.

Although President Reagan did not become involved, the issue has been under review at both EPA and the State Department at least since March 1988. It is my understanding that experts within those two agencies are in favor of calling for a convention but that a recommendation is being held up by those government officials who feel that an international convention is "premature."

Those who argue that we should "go slow" should be reminded of the fact that negotiation of a convention will be a long, slow process. There is little, if any, risk of quick international agreement to take precipitious action. On the other hand, we will never get any agreement unless we start the process of negotiating a convention.

To the extent the Intergovernmental Panel on Climate Change is already working towards an international agreement to address the threat of global climate change, the debate over issuing a call for a convention is a debate over form rather than substance. Issuing an immediate call for negotiation of a convention will be an important symbolic move that will not jeopardize significantly the position of those who advocate a delay in responding to the threat of global climate change. For the white House, it is a win-win situation.

Developing a National Policy to Reduce Emissions of CO2

On April 13, 1989, 24 Senators wrote to you to urge that your Administration develop and announce, as quickly as possible, a national policy to reduce U.S. emissions of carbon dioxide (CO2), one of the most significant greenhouse gases. A copy of that letter is attached.

The U.S. is one of the most energy inefficient countries in the world. Without the implementation of a policy to reduce our emissions of CO2, our ability to convince other nations to act on the greenhouse effect will be constrained. An aggressive domestic policy on CO2 emissions will indicate to the rest of the world first, that we are serious about solving this problem and second, that the technology exists to reduce emissions of CO2.

As with the call for an international convention, an announcement in the next few days or weeks of your decision to develop a CO2 reduction policy will have tremendous symbolic value and can serve as further evidence of your commitment to protecting our environment.

Conclusion

A package of initiatives should be put together quickly to establish you as the world leader on global climate issues and to bolster your image as the environmental President. These include:

- an immediate call for the negotiation of a convention on protection of the global climate; and

- announcement of a decision to develop a carbon dioxide reduction policy.

These two new initiatives could be announced in conjunction with:

- a decision not to relax the corporate automobile fuel economy standards (CAFE); and

- reaffirmation of your decision to phase-out chlorofluorocarbons based on the fact that, in addition to destroying the ozone layer, these chemicals are potent greenhouse gases.

United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

March 31, 1988

The Honorable Ronald W. Reagan
The White House
1600 Pennsylvania Avenue
Washington, D.C. 20500

Dear Mr. President:

We are writing to urge that you continue and expand recent initiatives on the international environmental problem of the greenhouse effect and global climate change, such as those announced at the conclusion of the December 1987 summit meeting with Soviet General Secretary Gorbachev. Specifically, we urge that, at the next summit meeting with the General Secretary in Moscow and at the upcoming economic summit meeting this June in Toronto, you call upon all nations of the world to begin the negotiation of a convention to protect our global climate. Such a convention could be modeled after the historic Vienna Convention to Protect the Ozone Layer.

You are to be congratulated for including the problem of global climate change as part of the agenda at the December 1987 summit meeting with General Secretary Gorbachev. It is encouraging to observe the growing commitment that our two nations are making to deal with the environmental threat of global warming. Of particular note was the Joint Summit Communique which stated that the "two sides will continue to promote broad international and bilateral cooperation in the increasingly important area of global climate and environmental change."

Scientists have warned us that increasing concentrations of certain pollutants in the atmosphere will increase the earth's temperature over the coming years to a level which has not existed for tens of millions of years. There is some urgency to this matter since scientists predict that, as a result of past pollution, we are already committed to a significant global warming. These greenhouse gases will lead to substantial changes in the climate of our planet with potentially catastrophic environmental and socio-economic consequences.

The predicted global warming and climate changes are expected to occur at a rate and in a fashion that will preclude natural evolutionary responses. The likely effects of the greenhouse effect include rising sea levels, changes in the location of deserts, extremely high temperatures in cities during

the summer months, increases in the number and severity of hurricanes, the death of large portions of forests, and the loss of adequate moisture in the mid-continent agricultural belt.

The challenge of reducing this threat to the planet's well being is considerable. One of the most significant greenhouse gases is carbon dioxide, a by-product of fossil fuels. The United States and the Soviet Union are the world's two largest contributors of carbon dioxide. Together, we account for almost one-half of the global total.

For these reasons, the United States and the Soviet Union must take positions of global leadership on this matter and call for a convention on global climate change. Such a convention could address our scientific understanding of the problem, the need for and limits of adaptation as a response to future climate change, as well as strategies to stabilize atmospheric concentrations of greenhouse gases at safe levels.

Negotiations to achieve a climate convention would have to take place on a multilateral basis. However, cooperation between the United States and the Soviet Union is an essential precondition of a successful international response to the greenhouse effect. The problems associated with global climate change provide an historic opportunity for our two countries to cooperate on a long term basis to insure the habitability of Earth. These facts were recognized and endorsed in the recently enacted Global Climate Protection Act (P.L. 100-204, sections 1101-1106).

For these reasons, we urge you and General Secretary Gorbachev to use the upcoming summit meeting scheduled to be held in Moscow as a forum to call for the negotiation of a convention on global climate change and to commit the United States and the Soviet Union to a leadership role in that process. At the same time we suggest that you expand and elevate the level of ongoing bilateral U.S.-U.S.S.R. activity which could enhance our understanding of the problem. We endorse the establishment of a high level working group to study potential responses to climate change, including greenhouse gas emissions reductions and adaptation to climate change. This expanded bilateral activity should be recognized and supported as an important priority within the United States' foreign and environmental policy agenda.

Similarly, we urge you to use the seven nation economic summit that is scheduled to be held during the month of June in Toronto as a forum to urge the negotiation of a global climate convention. At last year's economic summit, the leaders of the seven nations stated: "We underline our own responsibility to

encourage efforts to tackle effectively environmental problems of worldwide impact such as ... climate change...." This year's economic summit is the appropriate opportunity to take the next step and call for a global climate convention.

Thank you for your attention and commitment to this important, international environmental issue. We look forward to working with you and assisting you in our mutual efforts to protect our fragile planet.

Sincerely,

John F. Kerry
U.S. Senator

Max Baucus
U.S. Senator

John H. Chafee
U.S. Senator

Dave Durenberger
U.S. Senator

George J. Mitchell
U.S. Senator

Robert T. Stafford
U.S. Senator

Albert Gore
U.S. Senator

Dale Bumpers
U.S. Senator

Carl Levin
U.S. Senator

Pete Wilson
U.S. Senator

Frank Murkowski
U.S. Senator

Spark M. Matsunaga
U.S. Senator

Terry Sanford
U.S. Senator

David Pryor
U.S. Senator

Wyche Fowler, Jr.
U.S. Senator

Tom Harkin
U.S. Senator

Frank R. Lautenberg
U.S. Senator

Brock Adams
U.S. Senator

Timothy E. Wirth
U.S. Senator

Donald W. Riegle, Jr.
U.S. Senator

Alfonse M. D'Amato
U.S. Senator

Bob Graham
U.S. Senator

Patrick J. Leahy
U.S. Senator

Quentin N. Burdick
U.S. Senator

Dennis DeConcini
U.S. Senator

Bob Kasten
U.S. Senator

Arlen Specter
U.S. Senator

Steven D. Symms
U.S. Senator

Jeff Bingaman
U.S. Senator

Edward M. Kennedy
U.S. Senator

Bob Packwood
U.S. Senator

Thomas A. Daschle
U.S. Senator

Pete V. Domenici
U.S. Senator

Daniel J. Evans
U.S. Senator

Nancy Landon Kassebaum
U.S. Senator

Thad Cochran
U.S. Senator

William S. Cohen
U.S. Senator

Richard G. Lugar
U.S. Senator

Dan Quayle
U.S. Senator

Claiborne Pell
U.S. Senator

William V. Roth, Jr.
U.S. Senator

John Heinz
U.S. Senator

United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

April 13, 1989

The Honorable George Bush
The White House
Washington, D.C. 20500

Dear Mr. President:

It is time for the United States to reduce carbon dioxide emissions. As you stated so well in your campaign, "those who think we can do nothing about the greenhouse effect are ignoring the White House effect."

The nations of the world must take action to reduce emissions of carbon dioxide, the most significant of the greenhouse gases. As a result of past emissions, we are already committed to a substantial increase in the earth's surface temperature. Unless we take action today, carbon dioxide emissions will continue to rise rapidly on a global basis.

Since carbon dioxide is the central greenhouse gas, a policy to limit its emissions in the United States and globally is essential if we are to insure habitability of our planet in the twenty first century.

The United States is the world's largest emitter of carbon dioxide. Without the implementation of a policy to reduce our own emissions, our ability to convince others to act on the greenhouse effect will be constrained. An aggressive domestic policy on carbon dioxide emissions will indicate to the rest of the world first, that we are serious about solving this problem and second, that the technology exists to reduce emissions of carbon dioxide.

Mr. President, we urge you to take the initiative. The Administration should, as quickly as possible, develop and announce a policy to deal with emissions of carbon dioxide. Specifically, we suggest the following:

first, the United States should immediately commit itself to a 20% reduction in its CO2 emissions (based on 1988 emission levels) by the year 2000;

second, a plan to achieve those reductions in the United States should be developed and submitted to the Congress by October 1, 1989; and

third, we should use the time between now and the ministerial level meeting to be held on the global warming problem at the Hague in early November to convince other industrialized nations to join us in pledging to reduce carbon dioxide emissions 20% by the year 2000. Perhaps the next economic summit meeting, held in Paris, is an appropriate forum to establish a 20% club.

All levels of government, business and the public should be involved in the effort to control the global climate change caused by pollution. The American people must know the risks involved so that they can participate in developing and supporting solutions to the global warming problem.

A number of bills suggesting several approaches to reducing carbon dioxide emissions have been introduced in the Congress and have been cosponsored by a large number of Senators and Representatives. Therefore, we believe many in Congress are prepared to work with you to insure the success of a Bush Administration initiative in this area.

We are aware of on-going international efforts to discuss the greenhouse effect. The Intergovernmental Panel on Climate Change is an important focus of activity and we strongly support such efforts. Nevertheless, we can not afford the long lead times associated with a comprehensive global agreement. We must act to reduce emissions while we proceed with the negotiation of a global convention and protocols on climate change.

Thank you for your attention and consideration of our proposal. We look forward to working with you on this and numerous other environmental initiatives.

Sincerely,

George Mitchell
George J. Mitchell

John Chafee
John H. Chafee

Timothy E. Wirth
Timothy E. Wirth

Alfonse M. D'Amato
Alfonse M. D'Amato

John Heinz

Thomas A. Daschle

John F. Kerry

Jim Jeffords

Harry Reid

Terry Sanford

Rudy Boschwitz

Richard G. Lugar

Joseph I. Lieberman

Wyche Fowler, Jr.

Dave Durenberger

Jim Sasser

Claiborne Pell

Gordon J. Humphrey

Joseph R. Biden, Jr.

Dale Bumpers

Patrick J. Leahy

Bob Packwood

Brock Adams

Alan Cranston

CLOSE HOLD

Document No. _____

WHITE HOUSE STAFFING MEMORANDUM

DATE: 5/3/89 **ACTION/CONCURRENCE/COMMENT DUE BY:** _____

SUBJECT: DOMESTIC POLICY COUNCIL MEETING ON CLEAN AIR ACT ISSUES (ACID RAIN), THURSDAY, MAY4, 1989, 2:00 PM IN THE CABINET ROOM

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☐	☐	MCCLURE	☐	☑
SUNUNU	☐	☑	NEWMAN	☐	☐
SCOWCROFT	☐	☐	PORTER	☐	☑
DARMAN	☐	☐	STUDDERT	☐	☐
BATES	☐	☑	UNTERMEYER	☐	☐
BREEDEN	☐	☑	_____	☐	☐
CARD	☐	☐	_____	☐	☐
CICCONI	☐	☑	_____	☐	☐
DEMAREST	☐	☐	_____	☐	☐
FITZWATER	☐	☑	_____	☐	☐
GRAY	☐	☑	_____	☐	☐
HAGIN	☐	☐	_____	☐	☐

REMARKS: There will be a meeting of the Domestic Policy Council, for principals only, on Thursday, May 4, 1989 at 2:00 PM in the Cabinet Room on the subject of Acid Rain. The attached materials are for your information. Please advise Justine D'Andrea at 456-2800 by C.O.B. TODAY, WEDNESDAY, MAY 3, as to your attendance at the meeting. Thank you.

RESPONSE:

CLOSE HOLD

James W. Cicconi
Assistant to the President
and Deputy to the Chief of Staff
Ext. 2702

THE WHITE HOUSE

WASHINGTON

DOMESTIC POLICY COUNCIL

Thursday, May 4, 1989

2:00 P.M.

Cabinet Room

AGENDA

1. Clean Air Act (Acid Rain)

THE WHITE HOUSE

WASHINGTON

May 3, 1989

CLOSE HOLD DOCUMENT ATTACHED

MEMORANDUM FOR THE DOMESTIC POLICY COUNCIL

FROM: KEN YALE
Executive Secretary

SUBJECT: Fourth Meeting of the Domestic Policy Council, Thursday, May 4, 1989

Attached are an agenda and Acid Rain options paper for the fourth meeting of the Domestic Policy Council which is scheduled for Thursday, May 4, 1989 at 2:00 PM in the Cabinet Room. It is requested that principals only attend this meeting.

An initial draft was provided to your representative in the Environment, Energy and Natural Resources Working Group Meeting on Tuesday, May 2. Since the enclosed options paper is of a highly sensitive nature, please refrain from xeroxing additional copies and treat it as a "CLOSE HOLD DOCUMENT".

Administrator Reilly of the Environmental Protection Agency will give a presentation on the subject of Acid Rain, after which a discussion will follow.

Please advise Justine D'Andrea at 456-2800 by C.O.B. TODAY, WEDNESDAY, MAY 3, as to your attendance at this meeting.

Attachments - 2

CLOSE HOLD DOCUMENT ATTACHED

CLEAN AIR ACT OPTIONS PAPER: ACID RAIN

I. BACKGROUND

"Acid rain" is the common name for a phenomenon which occurs when sulfur dioxide (SO_2) and nitrogen oxide (NOx) emissions undergo a chemical transformation in the atmosphere and return to the earth as acidic rain, fog, or particles.

There is continuing debate over the nature and extent of damage caused by acid rain.

The Science: NAPAP

The National Acid Precipitation Assessment Program (NAPAP) is an interagency scientific committee established by Congress in 1980, with a 10-year mission to study the causes and effects of acid rain. NAPAP recently (1989) reported that:

> *"The only benefits generally agreed to be expected from new acid rain controls will be improvements in acidic and sensitive lakes and streams..."*

and that:

> *"There is no evidence of widespread forest damage from acid rain, with the possible exception of mountain-top exposures to acidic clouds."*

With respect to health risks, NAPAP stated:

> *"Possible health risks associated with the acid rain pollutants are currently being evaluated."*

NAPAP will have spent about $500 million to study acid rain by the time its final report is released in 1990.

Competing views:

On the other hand, the World Resources Institute (1988) has reported that:

> *"acid deposition and ozone are important contributors to the decline of several tree species in the East."*

and the Congressional Office of Technology Assessment (OTA) reported in 1984 that:

> *"Acid deposition may be adversely affecting a significant fraction of Eastern U.S. forests, ... [and] ... Fine particles such as sulfates reduce visibility and have been linked to increased human mortality in regions with elevated levels of air pollution."*

Sources of Acid Rain-Causing Emissions:

About 20 million tons of SO2 are emitted annually in the U.S. This represents a reduction of 25% since peak emissions in 1973, despite a near doubling of coal consumption during that period.

Roughly three quarters of these emissions result from the burning of fossil fuels by electric utilities. Another 20% comes from various, more widely dispersed (and thus more difficult to regulate) industrial sources, and 5% comes from transportation sources.

New sources of SO2 emissions were regulated by the Clean Air Act, first passed in 1971 and strengthened in 1977. Because of this, the source of most emissions -- and thus the focus of most legislative proposals -- is a relatively small number of old plants (pre-1971) not subject to the Act's "new source performance standards." For example, the 50 largest emitting plants are responsible for 50% of the SO2 emissions in the country.

NOx emissions are also about 20 million tons per year -- with transportation sources accounting for about half. The level has been fairly steady in recent years (only a 2 million ton increase since 1980), but without further controls, NOx emissions will begin to increase in the mid-1990s.

Commitments by the President

During the campaign, then Vice President Bush said:

> *"On the question of acid rain, the time for study alone has passed. We know enough now to begin taking steps to limit future damage ... As President, I will ask for a program to cut millions of tons of sulfur dioxide emissions by the year 2000, and to reduce significantly nitrogen oxide emissions as well."*

He followed up on that with the following statement in his February 9th statement to the Joint Session of Congress:

> *"I will send to you shortly legislation for a new, more effective Clean Air Act. It will include a plan to reduce, by date certain, the emissions which cause acid rain -- because the time for study alone has passed, and the time for action is now."*

The book, *Building a Better America*, said:

> *"The Administration's program will include market-based approaches, supplementing and modifying the traditional command-and-control approaches. The goal is to get the Federal government out of the detailed regulation of industry decisions and reduce the need for elaborate EPA-approved, State-prepared emission reduction plans ... The legislation will provide flexibility to states and industry to adopt least cost compliance strategies (and) incentives for the early deployment of innovative emission reduction techniques."*

Costs of Controlling Acid Rain:

Since 1970, the U.S. has spent over $225 billion to control emissions of sulfur dioxide and nitrogen oxides. Current estimates are that American industry spends about $33 billion per year on air pollution control -- and EPA estimates that the electric utility industry now spends about $10 billion a year for such controls under the existing Clean Air Act.

On the other hand, Americans spend over $160 billion per year on electricity -- and any of the legislative approaches currently under consideration would cost less than 5 percent of that.

According to EPA, a "least cost" strategy for reducing SO_2 emissions from utilities by 7 million tons from 1980 levels and NOx emis-

sions by 2 million tons from current levels would be between $2.0 and 2.4 billion per year (in 1988 dollars). Raising the required SO_2 emission reduction to 9 million tons raises the cost to between $3.6 and 4.0 billion annually.

> For discussion purposes, these two alternatives translate into bills which would reduce SO_2 emissions by 8 and 10 million tons respectively, because smelters and other industrial sources have already reduced emissions by 1 million tons since the commonly-used 1980 baseline date. At the same time, electricity demand is expected to grow, causing additional emissions which will have to be offset with further reductions. The exact amount of projected growth is open to some question, with EPA projecting 1.2 million additional tons of SO_2 emissions, and others projecting less.

To the extent that utilities are allowed to decide freely how to achieve the required reductions, or trade "emissions credits" with other utilities or industrial emitters, the cost goes down. Further, to the extent that clean coal technologies prove to be lower cost alternatives to utilities' generation needs, the costs of SO_2 reductions go down.

Contentious issues:

Historically, two major issues of contention have caused a stalemate on acid rain control legislation.

First is the impact such legislation might have on high-sulfur coal producers and coal mining employment. To the extent that utilities choose to switch to other fuels (natural gas, low-sulfur coal), high-sulfur coal mining jobs will be lost -- although ICF estimated that under a full freedom of choice bill introduced in the last session the impact would be 16,800 high-sulfur coal mining jobs lost. It should be noted that these losses would be offset by job gains in low-sulfur coal mining (plus 20,000 jobs under the same ICF estimate). It should be noted that some of the job gains would be in the same states -- albeit in different regions -- as the job losses. Northern West Virginia, for example, could be expected to lose 1,200 high-sulfur coal mining jobs, but southern West Virginia could gain 4,000 low-sulfur coal mining jobs.

EPA feels that under a full freedom of choice bill which requires a 10 million ton SO_2 reduction, the total high sulfur coal mining job loss (including non-coal mining jobs in high sulfur coal mining com-

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Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
03. Draft Paper	Clean Air Act Options Paper: Acid Rain (20 pp.)	5/3/89	P/5	

Collection:

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By NF (NLGB) on 5/12/05

Record Group: Bush Presidential Records
Office: Chief of Staff, White House Office of
Series: Sununu, John, Files
Subseries: Issues Files
WHORM Cat.:
File Location: Climate Change, White House Conference on Global (1990) [3]

Date Closed:	12/8/2004	**OA/ID Number:**	29150-004
FOIA/SYS Case #:	1998-0004-F[1]	**Appeal Case #:**	
Re-review Case #:	2005-0426-S	**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
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AR Disposition:		**MR Disposition:**	
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munities) could be between 20,000 and 50,000 jobs. These would, as noted, be at least partially offset by gains elsewhere.

In any event, options which are designed to increase the use of scrubbers or encourage the deployment of clean coal technology will mitigate the effect of reductions on these high-sulfur coal mining communities. Scrubber technology, however, is quite costly.

The second oft-discussed issue is the impact that any acid rain control program will have on electricity rates in affected states. In general, most Congressional proposals to date would raise national average electricity rates by about 2% after the year 2000. For the legislative proposal which mandated the most costly approach, scrubbers on specifically named plants, the rate increases in the two most severely impacted states (Indiana and Ohio) would be about 7% -- although without trading it would be higher for individual utilities.

What follows is a brief discussion of the major decisions to be made in crafting an acid rain reduction bill, with options presented to resolve each choice. To the extent possible, the costs associated with choosing these options -- as measured from the two base cases discussed above -- are identified. Because there is significant variability in possible true future costs, the cost estimates listed will be the mid-point of the range provided by EPA estimates.

II. POLICY OPTIONS

AMOUNT AND TIMING OF REDUCTIONS

Amount of Reductions: Second Phase

This is one of the most visible elements of any new Clean Air bill, and, according to Members of the House and Senate who have been consulted to date, will perhaps be the key dimension on which the Administration's proposal will be judged. All tonnage reductions are from the 1980 baseline.

Amount of Reductions: Second Phase

Option 1:	7 million tons	Cost: $1.8 B per year
Option 2:	8 million tons	Cost: $2.2 B per year
Option 3:	10 million tons	Cost: $3.8 B per year

(Totals under all options incorporate 1 million tons from smelters and other industrial sources)

Pros (of higher amount):

A broad consensus exists on Capitol Hill that the Administration must come forward with a "10 million ton" proposal in order to be "credible."

In general, greater reductions afford greater environmental benefits, although the relationship may not be linear.

Canada is on record as favoring at least a 10 million ton reduction.

Cons:

Cost curves are not linear: each additional incremental reduction is more costly than previous increments.

Health and environmental benefits of additional reductions are unclear.

Amount of Reductions: First Phase

Most bills call for a first phase of reductions as a way of guaranteeing early reductions and thus maximizing the cumulative reductions achieved through any control program.

Amount of Reductions: First Phase

Option 1:	5 million tons	Cost: $750 M per year
Option 2:	4 million tons	Cost: $450 M per year
Option 3:	No first phase	

(Totals for all options incorporate 1 million tons from smelters and other industrial sources)

Pros (of higher amount):

Higher amount of early reductions will be more "credible" with Hill and environmentalists.

Larger early reductions provide "insurance" against environmental and potential health effects.

Canadians favor 5 million tons.

Cons:

Higher amounts of early reductions drive up cost significantly.

Forcing larger early reductions could cause problems in siting new low sulfur mines to meet demand and siting and permitting retrofit technologies.

Timing of Reductions: Second phase

Option 1:	12/31/2000	Additional cost: EPA believes that annual cost will not rise with earlier date, although cumulative costs may rise.
Option 2:	12/31/2003	DOE disagrees, because of new technology moving down cost-curve in this time-frame. CEA points out annual costs incurred earlier.
Option 3:	12/31/2005	(baseline cost)

Pros (of earlier date):

The year 2000, like 10 million tons, is a "magic number" with

Cons:

DOE believes annual costs will be higher for earlier dates,

Capitol Hill, and is required to have "credibility."

EPA does not believe that earlier date will significantly raise costs annual costs; although CEA notes that billions of dollars are saved inin the cumulative total for each year during which costs are deferred.

Canadians favor year 2000 deadline.

because they could inhibit commercial deployment of new, potentially less costly clean coal technologies (unless extension is granted for CCT -- see below).

Timing of Reductions: First Phase

Option 1: by 12/31/94	Additional cost: EPA believes annual cost will not rise relative to Option 2, but will be incurred one year earlier.
Option 2: by 12/31/95	(baseline cost)

Pros (of earlier date):

An earlier date will be seen as more credible by environmentalists.

Earlier date maximizes cumulative reductions.

Cons:

Earlier date leaves less time for technology advances to help in achieving reductions; drives up cost.

Earlier date leaves less time to develop trading system (see below); drives up cost.

Disruption to high sulfur coal producers will be more dramatic.

Extension for Clean Coal Technology: Second Phase

Should a three-year extension be granted for emission sources that use repowering clean coal technologies to achieve required reductions?

Pros:

Takes advantage of U.S. government's planned $2.5 billion investment in new clean coal technologies.

Provides incentive for utilities to accelerate and invest in commercial deployment of these new technologies.

Pros *(cont)*:

Allows high sulfur coal, of which U.S. has substantial deposits, to continue to play a major role in firing electricity generation without requiring scrubbers or explicitly subsidizing coal producers and/or miners.

Cons:

Extending the deadlines may mean somewhat higher pollution during period of extension.

May allow some utilities who could achieve reductions earlier to wait until new deadline is expired.

Extension for Clean Coal Technology: First Phase

Should the bill grant a three year extension from emissions reduction deadlines to those plants which deploy Clean Coal Technologies ?

Pros:	Cons:
Without this, most technology applied to achieve reductions will be costly scrubber technology.	Extension will not affect availability of most repowering clean coal technologies (e.g. fluidized bed, coal gasification), which will not be available until the late 1990s at the earliest.
New retrofit technologies (e.g., sorbent injection) should be commercially available in the 1994-1998 time period.	

CONTROL STRATEGY – TRADING AND EMISSIONS ALLOCATION

Emissions trading and "marketable permits":

One important way of reducing the cost of any required emissions reductions is to allow utilities to trade allowed emissions -- thereby allowing whichever source is able to achieve the reductions at least cost to undertake the actual reductions.

There is consensus among those who favor "least cost" solutions that a full trading scheme between utilities in all states affected should apply in Phase II of the bill. However, there is some debate as to whether to allow trading in the first phase and, if so, how to structure the trading scheme.

Emissions Trading

Option 1: No trading.	Additional cost: $0.5 - 1 B (per year, v. full trading)

Pros:

Afford protection to high-sulfur coal producers by effectively dictating some minimum amount of scrubbing.

Easiest to implement.

May be difficult to establish trading scheme in short time of Phase One because rule-making procedure could be lengthy.

Cons:

By far most costly of all alternatives.

Dictates scrubbing.

Emissions Trading

Option 2: Provide State's Governors with authority to make re-allocations of any reductions allocated in the bill.

Pros:

Retains role for the states in determining how best to manage the effects of air pollution control programs.

Could be easier to implement than other trading schemes because many states already have acid rain control programs in place.

(cont.)
Pros *(cont)*:

Allows Governors to take into account all economic effects of acid rain controls and to seek to mitigate them.

Cons:

Less fair than trading system, provides arbitrary allocation power to state governments.

Adds additional layer of bureaucracy to trading/allocation system.

Places Governors in difficult situation *vis a vis* competing interests; Governors may prefer Federal control.

Emissions Trading

Option 3: Allow trading of permits between all utilities within a state.

Additional cost: This is used as the "least cost" baseline

Pros:

Easy to implement, could be regulated by state public utility commissions.

Only slightly more costly than full interstate trading.

Cons:

Could allow some of the dirtiest plants to continue emitting SO_2.

May not be able to implement right away; could require some rule making process.

Emissions Trading

Option 4: Allow trading of permits within a utility franchise even if some trades are interstate.

Additional cost:

Pros:

Individual utility companies responsible for given amount of emission reduction could allocate it most fairly.

Cons:

Could require coordination among states, which may be difficult.

Unfairly favors bigger utilities which would have more flexibility.

Emissions Trading

Option 5: Full interstate trading Additional cost: -$100 million

Pros:	Cons:
Most flexible and least cost of all options.	Extremely difficult to implement; would require lengthy rule-making procedure. Probably not workable in first phase.

Regulatory Incentives for Deployment of Innovative Clean Coal Technologies

The use of innovative clean coal technologies can not only result in lower compliance costs, but can also achieve other benefits in terms of extending useful plant life, increasing the efficiency of the generation process and eliminating or reducing other environmental problems (e.g., scrubber sludge). However, the risks and uncertainties associated with the deployment of new technology can conflict with the traditional emphasis on reliability and dependability in the electric utility sector. To help overcome this rsk barrier, several groups, including the Presidential Task Force on Regulatory Relieft (chaired by then Vice President Bush), the DOE Innovative Control Technology Advisory Panel (ICTAP) and the National Coal Council have recommended additional regulatory incentives for deployment of clean coal technologies. These incentives would permit more favorable rate regulation of these projects by the Federal Energy Regulatory Commission (FERC) and/or State Public Utility Commissions. Should the bill include provisions for regulatory incentives?

Pros:	Cons:
Will help overcome risk barriers to the use of potentially lower cost and environmentally superior clean coal technologies. The emphasis on clean coal technology will help mitigate the potential reduction in the use of high sulfur coal. Strongly supported by the coal and utility industries, and will help garner additional support for the overall bill.	Could skew the economics in favor of clean coal technologies at the expense of other compliance options. If the State PUC incentives are mandatory, State Commissions may strongly object on federalism grounds.

Additional deployment incentives will help mitigate the potential disincentives to new technologies posed by tight compliance schedules.

Control Strategy: How to allocate required reductions

Once a trading system is agreed to, it is possible to understand more fully the implications of any allocation strategy to achieve the reductions called for in any bill. There are several options for how to allocate initially the reductions that will be required -- although the actual execution of the reductions will also be affected by the trading strategy adopted.

Allocating Required Reductions

Option 1:	Require top 20 polluting plants (in phase one) to meet a certain average emissions standard (e.g. enough to achieve 4 million ton reduction -- approx. 1.1 lbs/million BTU); Then require all plants to meet average emissions standard in phase two (e.g., enough to achieve 9 million ton reduction -- estimated to be about 1.0 lbs. per Million BTU, although this number is the subject of continuing debate). Additional cost: $.1 to $.5 B per year (without trading)

Pros:	Cons:
Easy to implement (in 1st phase), because we know who biggest emitters are.	It seems unfair to subject some plants to one standard, other plants to another, less stringent standard.
Politically more palatable, because this regime would only affect 20 plants in 9 states -- thus generating less widespread opposition.	Could force greater use of scrubbers because of narrow focus.
These plants tend to be in regions whose electric rates are somewhat lower than certain other regions.	Concentrates cost effects on narrow geographic sector, increasing the political pressure for subsidies.

Allocating Required Reductions

Option 2: Require all plants larger than 100 megawatts nationwide to meet a standard adequate to achieve reduction in first phase (4 million ton reduction would require 2.5 lbs./million BTU);

Then require all plants nationwide to meet lower standard needed to achieve required reduction in second phase (9 million tons might require about 1.0 lbs/million BTU standard, again subject to continuing debate and analysis).

Pros:

Fairest of all the options -- requires all plants to meet the same standards.

Does not force one region or set of utility companies to meet disproportionate share of burden of reductions.

Low cost, since it allows individual plants to meet requirements in any way they choose.

Cons:

More difficult to implement, since it requires regulation of many more plants.

Will engender more widespread political opposition, since 107 plants in 18 states would be affected.

Allocating Required Reductions

Option 3:	Allocate reductions to states (based on the extent to which their average emissions exceed the amounts needed to achieve the required nationwide reductions); require states to submit plans to EPA for how they plan to achieve reductions.

Pros:

In line with the traditional EPA state planning process (under which states submit State Implementation Plans, or "SIPS", detailing how they will meet clean air requirements).

Maximizes state role, and, some might argue, state flexibility.

Arguably, could be made to be consistent with "least cost" strategy, but this may be difficult.

Cons:

Existing SIP process has not worked particularly well.

Less efficient than allocating reductions directly to those doing the emitting.

Adds unnecessary layer of bureaucracy to reduction program -- could impair ability to achieve the reductions.

Allocating Required Reductions

Option 5: Allocate equal percentage of reductions to all sources -- percentage required based on amount required in bill -- in all states covered by the bill.

Additional cost: $100 - 500 million

Pros:

Spreads the pain -- required reductions spread evenly to all states and not focussed on a particular region.

Provides incentives for all utilities to continue reducing emissions.

Cons:

Unfair to those states and utilities which have already taken steps to reduce emissions -- still requires further costly reductions in "clean" states, before "dirtier" states have controlled to a comparable level.

Utility rates in high emitting regions (e.g. the Midwest) are lower than those in some with lower emissions -- so it is fair to concentrate required reductions there.

Not consistent with "least cost" control strategy.

Trading to encourage early reductions:

EPA has suggested offering 2 for 1 reduction credits for above-required reductions to sources which achieve greater than their reduction requirements in phase one.

Pros:

This helps achieve early reductions.

Mitigates against negative effect of fuel switching on coal mining producers.

Reduces overall cost of bill, because it obviates the need for some later reductions.

Cons:

Environmental benefits in the aggregate are lessened because total level of emissions reductions is reduced.

Acid rain damage is occurring at a slow enough pace that goal should be to maximize overall reductions.

Could reduce use of Clean Coal technologies in later phase by encouraging use of scrubber technologies in first phase.

By altering cost-effectiveness calculation with respect to scrubbers, reduces the cost-effectiveness of reductions actually achieved.

Requiring NOx Emissions Reductions:

The focus of this paper heretofore has been SO_2 reductions. Most legislation on the Hill would also require reductions in emissions of NOx.

Requiring NOx Reductions

Option 1:	Require no NOx reductions below current baseline. Require no NOx reductions below current baseline.

Pros:

Least cost option.

Cons:

Likely to be criticized by environmentalists.

Some NOx reductions are easily achievable.

Requiring NOx Reductions

Option 2: Require NOx emission reductions of 2 million tons below current EPA baseline projections.

Additional cost: $.3 to $.5 B

Pros:

First 2 million ton reduction can be achieved rather easily through low NOx burners and combustion modifications.

Will help US comply with NOx Protocol.

Cons:

Merely maintains NOx emissions at roughly current levels--could be seen as inadequate.

Requiring NOx Reductions

Option 3: Require NOx emission reductions of 4 million tons below current EPA baseline projections.

Additional cost: $1.5 Billion

Pros:

Affords most environmental protection, since NOx emissions contain more acidity than do SO_2 emissions.

Will help US comply with NOx Protocol.

Cons:

Costs of NOx reductions escalate sharply above 2 million tons.

Required NOx Reductions

Option 4: Allow SO2/NOx Trading:

Some have suggested that, in that the goal is to reduce overall emissions of acid rain precursors, trading between SO2 and NOx emissions should be allowed -- either at a 1 for 1 ratio, or at a ratio of 2 NOx for each SO2.

Pros:

Allows more flexibility in achieving overall reductions

Cons:

Depending on amount of S02 reductions required, could be accused of weakening the bill. (Alternatively, could require higher SO2 reductions as well as trading.)

Old/New Source Emissions Trading:

All of the trading schemes above assume that trading would be allowed only between "old", or existing sources of SO2 emissions. Some have suggested that trading should be allowed between "old" and "new" sources.

Additional cost: -$.3 to -$.5 Billion
(relative to least-cost "old-old" trading)

Pros:

Least costly of all schemes

Allocates reductions in way deemed most efficient by marketplace.

Cons:

Re-opens the debate on new source performance standards, and in particular, percentage reduction (as applied to new sources), which was a major issue in the 1977 legislation.

Would be criticized by environmentalists.

Non-utility sources:

As discussed above, about 20% of current SO_2 emissions come from plants other than electric utilities.

Non-Utility Sources

Option 1: Allocate some reductions to non-utility sources (e.g., require them to meet same emissions standards as utilities.)

Additional cost: _____

Pros:

Since all sources contribute to the problem, utilities argue that it is fair to require all emitters to meet the same standard; utilities should not be singled out.

Cons:

These plants are smaller and more dispersed; and thus would be considerably more difficult to regulate.

We do not now have adequate capacity to monitor emissions from non-utility sources.

Raises control costs and opposition to legislation from industrial sources significantly.

Non-Utility Sources

Option 2: Do not allocate reductions to non-utility sources, but allow utilities to trade with these sources if they can achieve SO_2 reductions more cheaply than utilities.

Additional cost: -$0.2 to -$0.5 billion (below utility only trading)

Pros:	Cons:
Increases economic efficiency of achieving required reductions.	Difficult to establish a baseline and monitor whether non-utility sources actually achieve reductions since infrastructure to do so is not in place.
True "least cost" alternative.	Creates economic windfall for non-utility sources, of whom no reductions are required, but who can bargain for reductions.
	Unfair to target utilities and not other polluters.

Non-Utility Sources

Option 3: No trading with non-utility sources.

Pros:	Cons:
Simplest to implement.	More costly.

Controlling emissions from oil-fired plants:

Some have suggested that oil-fired utility boilers should be subject to a 0.8 lb. per million BTU emission requirement.

Additional cost: $400 M. per year

Pros:

Spreads the pain by requiring those regions most likely to benefit environmentally from acid rain legislation (e.g., the Northeast) to share in the required reductions..

Can add 1 million tons at low cost to reductions achieved since 1980, since 700,000 ton reduction has already taken place.

Cons:

Unfair to subject utilities in one region to a different, lower standard.

Achieves only 300,000 tons in actual reductions..

Not a cost-effective means of achieving reductions -- cost per ton removed higher than for comparable reductions from coal plants.

Allowing Emission Reduction Credits for Conservation Measures:

Some have suggested that some sort of credit be given to utilities for measures undertaken to promote conservation.

Emissions Credits for Conservation

Option 1:	No credit.
Option 2:	Allow credit of 1 ton reduction for each $1,000 spent by a utility on conservation measures.

Pros (of credit):

Promoting conservation has other benefits -- such as those on reducing global warming.

Easy to monitor -- utilities in many states already report conservation expenditure programs to state public utility commissions.

Cons:

Conservation initiatives may not actually contribute to achieving the desired emission reductions.

Depending on level at which credit is granted, may not be a cost-effective way of achieving reductions.

Emissions Credits for Conservation

Option 3: Allow credit of 1 ton for those utilities that make expenditures of $1,000 on conservation AND engage in least cost energy planning and load management practices approved by EPA and state environmental agencies.

Pro:

Helps certify that conservation measures undertaken by utilities really are effective.

Least cost energy planning is a proven way of ensuring that utilities undertake only cost-effective expenditures.

Cons:

Could raise Federalism issues.

Heavily bureaucratic and potentially inflexible way of achieving conservation.

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Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
04. Memo	From Nancy Maloley to David Bates Re: Framework Convention on Global Climate (2 pp.)	5/3/89	P-5	

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: Climate Change, White House Conference on Global (1990) [3]

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(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

May 3, 1989

MEMORANDUM FOR DAVID Q. BATES
ROGER B. PORTER

FROM: NANCY MALOLEY NaM
KEN YALE KY

SUBJECT: Framework Convention on Global Climate

A meeting was held today to discuss environmental issues as they relate to the upcoming economic summit. The discussion quickly turned to the issue of an international convention. Present were representatives from State, EPA, OPD and DPC.

There is little support, except from OMB, for a flat refusal to discuss possible elements of a framework convention. The issue is whether it should be discussed in the normal RSWG process, or if a separate group should be formed to focus discussions.

EPA firmly supports creating a separate process in the U.N. Response Strategies Working Group (RSWG) meeting next week, to begin discussions. International interest in the concept, and the concern that the issue would be taken away from the U.S.-chaired RSWG in other upcoming international environmental meetings, were mentioned.

State was clearly divided over the issue. The Bureau of Oceans, and International Environmental and Scientific Affairs (OES, in charge of environmental issues) also stressed growing international interest and the possibility of other international organizations taking up the issue. The Office of the Under Secretary for Economic and Business Affairs (in charge of Economic Summit preparations) was interested in making sure there was interagency agreement before we proceed, that the issue is framed to the advantage of the President, and avoiding dilution of the issue prior to the Summit.

It was concluded that:

1. No one wants to see premature creation of a convention.
2. There is no consensus on the creation of a separate process within RSWG to focus attention on discussions of a framework convention.
3. There already exists a mechanism for discussion of the issue in RSWG, and that could be used next week.
4. The Secretary of State and other Cabinet members are interested in seeking interagency consensus on how to approach a discussion on a framework convention, before discussions formally begin.

The best approach may be to delay a decision on the appropriate process within RSWG for discussions of a framework convention, until the DPC has thoroughly reviewed the issue. U.S. participants in RSWG can still discuss options for discussing a framework convention at the meeting next week, and report back to the DPC. This will avoid focusing on this issue in RSWG prematurely and place the focus for this issue on the White House.

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
05. Memo with Attachments	From Karl Th. Paske, Representative of the Embassy of the Federal Republic of Germany, to D. Allan Bromley Re: Position Paper of the FRG for the White House Conference on Science and Economics Research Related to Global Change SENT FOR AGENCY REFERRAL (3 pp.)	4/3/90	(b)(1)	

Collection:

Document Declassified
(Document Follows)
By JP (NLGB) on 8/14/98

Record Group: Bush Presidential Records
Office: Chief of Staff, White House Office of
Series: Sununu, John, Files
Subseries: Issues Files
WHORM Cat.:
File Location: Climate Change, White House Conference on Global (1990) [3]

Date Closed:	12/8/2004	**OA/ID Number:**	29150-004
FOIA/SYS Case #:	1998-0004-F[1]	**Appeal Case #:**	
Re-review Case #:	2005-0426-S	**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
AR Case #:	98-0004-F/1	**MR Case #:**	
AR Disposition:	Released in Full	**MR Disposition:**	
AR Disposition Date:	8/14/1998	**MR Disposition Date:**	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

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]
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C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

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Botschaft
der Bundesrepublik Deutschland
Embassy
of the Federal Republic of Germany

Washington, April 3, 1990
4645 Reservoir Road, N.W.
Washington, D. C. 20007 - 1998
USA
Tel.: (202) 298 - 4000

Az.: _____
(Bei Antwort bitte angeben)

The Honorable
Dr. Alan Bromley
Assistant to the President
for Science and Technology
OEOB
Room 358
17th St. & Pennsylvania Ave., N.W.
Washington, D.C., 20406

Dear Dr. Bromley,

I have the honor to transmit to you the enclosed Position Paper of the Federal Republic of Germany for the White House Conference on Science and Economics Research Related to Global Change to be held in Washington, on April 17 and 18, 1990.

Sincerely yours,

Karl Th. Paschke

Karl Th. Paschke
Minister

Position Paper of the Federal Republic of Germany for the White House Conference on Science and Economics Research Related to Global Change, Washington, April 17 and 18, 1990

As the Federal Chancellor stated in his letter of reply to President Bush, the Federal Government attaches maximum significance to the practical and political aspects concerning Global Change. This applies in particular to Global Climate Change. These challenges cannot be met by national measures alone. They demand, however, increasingly close international cooperation and a greater readiness to take action.

Complex environmental problems cannot be effectively tackled without sufficient knowledge of their causes and consequences. Large-scale measures require sound fundamental knowledge. Necessary action must not be deferred or delayed merely because it has not been possible to clarify conclusively all the complicated scientific interrelationships associated with an environmental threat. On the contrary, the precautionary approach demands that action be taken now, in our own interest and the interest of future generations.

The increase in the greenhouse effect is caused by a series of trace gases, particularly CO_2, which are emitted as a consequence of human activities. The Federal Government implemented a climate research program as early as 1982. A research program concerning ozone was submitted as the German contribution to climate and atmospheric research in 1988. In 1989 the Government decided to place emphasis on research into the greenhouse effect, and approved an energy research program in 1990. The Federal Government has increased its budget for climatic research by 600 percent in the last few years. A further rise is envisaged.

In 1987, the German Bundestag set up a Study Commission entitled "Preventive Measures To Protect the Earth's Atmosphere", in which both Members of Parliament and renowned scientists are working together. This Commission has in the meantime presented a first report which has also been submitted to Washington in English.

This report contains a comprehensive survey of the possible developments and effects resulting from ozone disintegrations in the stratosphere as well as the increased greenhouse effect in the troposphere. Further reports on the significance of forests in the climate change and on the possibilities for reducing CO_2 emission levels will soon be available.

The results of the Federal Government research and the work conducted by the Study Commission have led to sound findings which largely correspond to investigations carried out by scientists from other countries.

Based on the first report of the Study Commission, the German Bundestag reached the unanimous conclusion on 9 March, 1989 that

"the risks threatening the Earth's atmosphere necessitate immediate and extensive action at national and international level."

The Federal Government is of the opinion that further climatic research is necessary. However, the Government is also convinced that immediate measures must be taken in important areas, such as the limitation of CO_2 emissions, the conservation of forests, and the reduction of emissions from agriculture and waste management.

The Federal Government therefore proposes that the White House Conference also deal with "Response Strategies" and immediate measures in a plenary discussion. The German Delegation is prepared to make an introductory contribution within the scope of this discussion. It therefore requests that the Conference agenda be adapted accordingly.

TUESDAY 4/10/90 THE WHITE HOUSE
WASHINGTON, D.C.

The White House Conference
on
Science and Economics Research Related to Global Change

FOREIGN DELEGATION PARTICIPATION LIST
(Arranged by Countries and Heads of Delegations)

Opening Remarks - Foreign Delegate (1)

* POLAND - JAN JANOWSKI
  Deputy Prime Minister; Head of the Agency for Science and Technological Progress and Application

Foreign Delegates Panel - Three Delegates Remarks on Three Themes (3)

* FRANCE - HUBERT CURIEN
  Minister of Research and Technology

* JAPAN - ISHIMATSU KITAGAWA
  Minister of the Environment

* MEXICO - Lic. PATRICIO CHIRINOS
  Secretary of Urban Development and Ecology

Monday
April 9, 1990
5:18 am

Foreign Delegates to Lead the Working Groups (9)

* AUSTRALIA - NEAL BLEWETT
Minister for Trade Negotiations

* BRAZIL - JOSE LUTZENBERGER
Environment Secretary

* CANADA - LUCIEN BOUCHARD
Federal Environment Minister

* FEDERAL REPUBLIC OF GERMANY - PROF. DR. KLAUS TOPFER
Federal Minister for the Environment, Natural Protection, and Nuclear Safety

* ITALY - Hon. ADOLFO BATTAGLIA
Minister of Industry

* NETHERLANDS - HANS ALDERS
Minister for Housing, Physical Planning, and Environment

* NIGERIA - Major General MAMMAN KONTAGORA
Minister of Works and Housing

* OECD - ROBERT CORNELL
Deputy Secretary General

* ZAIRE - CITOYEN LOBO KANZA KANZA
Secretary of State (Deputy Minister); Ministry of Environment and Conservation of Nature

USSR

Foreign Delegates to Make Presentations in Third Session of W.G's (3)

* EUROPEAN COMMUNITY - LAURENS JAN BRINKHORST
Director-General for Environment, Nuclear Safety, and Civil Protection

* INDONESIA - Prof. Dr. Ing. B.J. HABIBIE
Minister of State for Research and Technology; Chairman of the Agency for the Assessment and Application of Technology

* UNITED KINGDOM - DAVID TRIPPIER RD, JP, MP
Minister for the Environment and Countryside

Three Foreign Delegates Panel to Make Concluding Remarks at End of WHC (3)

* INDIA - Ms. MANEKA GANDHI
  Minister of State for Environment and Forests

* NORWAY - KRISTIN HILLE VALLA
  Minister of Environment

* SOVIET UNION - NIKOLAY PAVLOVICH LAVIOROV
  Chairman of the U.S.S.R. State Committee on Science and Technology

Total Foreign Delegates Giving Approximately 10 Minute Presentations (19)

LIST OF COUNTRIES PARTICIPATING IN THE CONFERENCE

(All Talks/Presentations are 10 Minutes)

1. Australia	Chairman of Working Group
2. Brazil	Chairman of Working Group
3. Canada	Chairman of Working Group
4. Fed. Republic of Germany	Chairman of Working Group
5. France	Opening Remarks on Conference/Themes
6. India	Concluding Remarks on Conference
7. Indonesia	Working Group/Theme III - Talk
8. Italy	Chairman of Working Group
9. Japan	Opening Remarks on Conference/Themes
10. Mexico	Opening Remarks on Conference/Themes
11. Netherlands	Chairman of Working Group
12. Nigeria	Chairman of Working Group
13. Norway	Concluding Remarks on Conference
14. Poland	Opening Remarks on the Conference
15. Soviet Union	Concluding Remarks on Conference
16. United Kingdom	Working Group/Theme III - Talk
17. Zaire	Chairman of Working Group
18. European Community	Working Group/Theme III - Talk
19. OECD	Chairman of Working Group

File = DELEGATE.410

Monday
April 9, 1990
5:18 am

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 30 1990

OFFICE OF
THE ADMINISTRATOR

NOTE TO DR. ALLAN BROMLEY

A matter came up at the end of our session today on which I wanted to get back to you. The conference on New Technologies, Business Opportunities, and Strategies for Reducing U.S. Greenhouse Gas Emissions, being co-sponsored by EPA, the University of Maryland, Harvard University's Kennedy School of Government, Princeton, and The National Institute for Emerging Technology. This conference was premised on the view that irrespective of the results of necessary ongoing research, world demand is growing for technologies that promote productivity with reduced greenhouse gas emissions, and U.S. firms should not be impeded in competing for this business. As the brochure states, other countries are aggressively developing and marketing technologies and this conference was designed to promote maximum industry-government communication and to assure "competitive benefit" to U.S. companies developing such technologies.

It is often EPA regulations that erect "market barriers", and we want to minimize such problems. Over the last few weeks, EPA staff has requested staff at the Departments of Energy and Commerce to participate and to help focus these discussions in the most productive ways.

I wanted to clarify that this is not a conference designed to engage any debate on the science issues, which, as we know, are still unresolved. Again, our objective is to help ensure U.S. competitiveness in the global marketplace. It makes sense to use your working group as a clearinghouse for information on conferences and developments of this sort and we will commit to work with you on such a clearinghouse. We think that you are

developing an effective structure for Administration coordination on climate change issues and are committed to work closely with you to make sure that we maximize the prospects for success of the April conference and, in the long-run, work together to help the President position himself as a world leader on the science, environmental and economic dimensions of this issue. Please let us know how we can help.

F. Henry Habicht II
Deputy Administrator

cc: Admiral James Watkins
Roger Porter
David Bates
Robert Grady
Steve Danzansky

FYI

THE WHITE HOUSE
WASHINGTON, D.C.

Office of the White House Conference
on
Science and Economics Research Related to Global Change

April 5, 1990

MEMORANDUM TO GOVERNOR SUNUNU:

FROM: William D. Harris

SUBJECT: The President's White House Conference on Science and Economics Research Related to Global Change - Delegate Update

Attached is the delegation list and the delegate attendance summary as of 5:00 pm Thursday.

I have also attached a copy of a Federal Republic of Germany (FRG) position paper which was received by our delegate management team today. I believe that this position paper deserves your attention.

1019 Nineteenth Street, N.W. Suite 615, Washington, D.C. 20036 (202) 653-5980

PRELIMINARY

DELEGATION LIST

CURRENT AS OF

APRIL 5, 1990; 12:00 NOON

Additions: West German full delegation and confirmation
Norwegian confirmation
Soviet delegation
Final French name
Polish delegation

BRAZIL

(tentative)

Name	Title
Jose Lutzenberger	Environment Secretary
Jose Goldemberg	Science Secretary

CANADA

(tentative)

Name	Title
Lucien Bouchard	Federal Environment Minister
Derek Burney	Ambassador to the United States
Dr. Ann White	Director, Canadian Global Change Program
Dr. Arthur W. Mays	President, the Natural Science and Engineering Research Council

EUROPEAN COMMUNITY

(tentative)

Name	Title
Laurens Jan Brinkhorst	Director-General for Environment, Nuclear Safety and Civil Protection
Jurgen Henningsen	Director for Environmental Quality and Natural Resources
Michael Emerson	Director for Economic Evaluation of Community Policies, Directorate-General for Economic and Financial Affairs
Philippe Bourdeau	Director for Environment and Non-Nuclear Energy Sources, Directorate-General for Science, Research and Development
Stanley Johnson	Director for Energy Policy, Directorate-General for Energy
David Wright	Central Advisory Group, Secretariat-General of the Commission

FEDERAL REPUBLIC OF GERMANY

(Confirmed)

Name	Title
Professor Dr. Klaus Topfer	Federal Minister for the Environment, Nature Protection and Nuclear Safety
Dr. Gebhard Ziller	State Secretary, Ministry for Research and Technology
Dr. Wilhelm Knittel	State Secretary, Ministry of Transportation
Baldur Wagner	Assistant Secretary, Federal Chancellery
Dr. Mario Graf von Matuschka	Assistant Secretary, Foreign Ministry
Dr. Horst Glatzel	Deputy Assistant Secretary, Federal Chancellery
Walter Lotz	Deputy Assistant Secretary, Ministry of Economics
Professor Dr. Ansgar Vogel	Deputy Assistant Secretary, Ministry for Environment, Nature Protection, and Nuclear Safety
Dietrich Kupfer	Director, Office of International Cooperation, Ministry for Environment, Nature Protection and Nuclear Safety
Professor Dr. Hartmut Gross	Scientist, Max Planck Society, Hamburg

FRANCE

(tentative)

Name	Title
Minister Hubert Curien	Minister of Research and Technology
Minister Brice Lalonde	Secretary of State for the Environment
Jean Audouze	Science Advisor to the President
Claude Alegre	Special Advisor to the Minister of Education
Ambassador Jean Ripert	Ministry of Foreign Affairs (Environment)
Yves Martin	Chairman of the Interministry Committee on Greenhouse
Madame Borione	Ministry of Foreign Affairs
Andre LeBeau	General Director of the Meteorological Center
M. Nasse	Ministry of Economy and Budget
Sylvie Faucheux	Professor of Economy at Paris I

INDIA

(tentative)

Name	Title
Ms. Maneka Gandhi	Minister of State for Environment and Forests
Vasant Gowarikar	Secretary of Department of Science and Technology
Mahesh Prasad	Secretary of Ministry of Environment and Forests
Dr. A.P. Mitra	Director General of Council for Science and Industrial Research

INDONESIA

(confirmed)

Name	Title
Prof. Dr. Ing. B.J. Habibie	Minister of State for Research and Technology; Chairman of the Agency for the Assessment and Application of Technology
Prof. Dr. Samaun Samadikun	Chairman of the Indonesian Institute of Science
Prof. Dr. John A. Katili	Deputy Chairman of the National Research Council
Prof. Dr. Gunawan Satari	Permanent Secretary, Ministry of State for Research and Technology
Mr. Poedji Kuntarso, MA	Director General for Foreign Economic Relations; Ministry of Foreign Affairs
Prof. Dr. Rustam Didong	Deputy Chairman (Economics), National Development Planning Agency
Prof. Dr. Harsono Wiryosumarto	Deputy Chairman (Technology Development); Agency for the Assessment and Application of Technology
Prof. Dr. S.B. Joedono	Assistant Minister (Industry, Energy and Mining), Office of the Coordinating Minister for the Economy, Finance, Industry and Development Supervision

INDONESIA

(continued)

Name	Title
Dr. M. Alwi Dahlan	Assistant Minister (Population), Office of the Minister of State for Population and the Environment
His Excellency Abdulrachman Ramly	Ambassador of the Republic of Indonesia to the United States of America

ITALY

(tentative)

Name	Title
Hon. Adolfo Battaglia	Minister of Industry, Head of Delegation
Prof. Umberto Colombo	Director of the National Agency for Nuclear and Renewable Energies
Prof. Giuseppe Biorci	Vice President of the National Research Council
Prof. Giuseppe Bianchi	Director General for Energy Sources, Ministry of Industry
Prof. Antonio Praturlon	President of the CNR Committee on Geological Sciences
Prof. Roberto Frassetto	CNR Institute of the Dynamics of Great Masses
Prof. Emilio Gerelli	Economic Counselor to the Minister of Environment
Dr. Corrado Clini	Director General for Pollution Prevention, Ministry of Environment
Prof. Guido Visconti	Department of Physics, University of L'Aquila
Dr. Giovanni Sacco	Vice Director General of Treasury, Ministry of Treasury

MEXICO

(tentative)

Name	Title
Lic. Patricio Chirinos	Secretary of Urban Development and Ecology
Dr. Jose Sarukhan	Rector, National Autonomous University
Dr. Herminio Blanco	Undersecretary for Foreign Commerce, Secretariat of Commerce and Industrial Development
Ing. Alberto Escofet	Undersecretary for Energy, Secretariat of Energy, Mines and Parastatal Industries
Lic. Jose Angel Gurria	Undersecretary for International Financial Affairs, Secretariat of the Treasury
Fis. Sergio Reyes	Undersecretary for Ecology
Amb. Alberto Szekely	Legal Counsel, Secretariat of Foreign Affairs
Dr. Julian Adem	Director, Center for Atmospheric Studies, National Autonomous University
Dr. Manuel Ortega	Director General, National Council for Science and Technology
Hector Santana	Staff Aide to Secretary Chirinos

THE NETHERLANDS

(tentative)

Name	Title
Hans Alders	Minister for Housing, Physical Planning and Environment
Dr. B.C.J. Zoeteman	Deputy Director-General for Environment
Dr. Pier Vellinga	Coordinator for National Climate Programs
N.D. Van Egmond	Director for Chemistry and Physics, State Institute for Public Health and Environmental Hygiene
I.G. Roos	Directorate-General for European Cooperation, Ministry of Foreign Affairs
Dr. H.M. Fijnaut	Director of the Royal Dutch Meteorological Institute
Dr. A.P.M. Baede	Head of the Department for Dynamical Meteorology
D.F.W.T. Pietermaat	Environmental Coordinator in the Directorate-General for Energy, Ministry of Economic Affairs
Prof. J.B. Opschoor	Professor of Ecology, Free University, Amsterdam

NORWAY

(tentative)

Name	Title
Kristin Hille Valla	Minister of Environment
Einar Steensnaes	Minister of Education and Science
Ambassador Kjeld Vibe	Norwegian Ambassador to the United States
Oddmund Graham	Secretary General, Ministry of Environment
Kaare Bryn	Director General, Ministry of Foreign Affairs
Dr. Tore Olsen	Director General, Ministry of Education and Research
Per M. Bakken	Coordinator, Air Pollution, Ministry of Environment
Lorents Lorentsen	Director of Research, Central Bureau of Statistics
Professor Dr. Ivar Isaksen	University of Oslo
Leif Westegaard	Science Officer, Norwegian Embassy in Washington

THE OECD

(tentative)

Name	Title
Robert Cornell	Deputy Secretary-General
William L. Long	Director for Environment
John Ferriter	Deputy Executive Director, International Energy Agency
Andrew Dean	Administrator, Department for Economic Affairs and Statistics
George Kowalski	Head of the Division of Economic Analysis, International Energy Agency

POLAND

(tentative)

Name	Title
Jan Janowski	Deputy Prime Minister; Head of the Agency for Science and Technological Progress and Application
Andrezejewski	Deputy Minister of the Environment
Tadeusz Diem	Deputy Minister of Education
Mr. Rybicki	Central Planning Office
Kazimierz Duchowski	Director, Department of Economic Cooperation, Ministry of Foreign Affairs
Mr. Wiackowski	Chairman, Parliamentary Commission on Environmental Protection
Professor Stakel	Polish Academy of Sciences
Mr. Sadowski	Institute of Metallurgy and Water Management
Wlodzimierz Bojarski	Member of the Senate
Jan Kinast	Polish Ambassador to the United States

SOVIET UNION

(tentative)

Name	Title
Nikolay P. Laverov	Chairman, U.S.S.R. State Committee on Science and Technology
Yuriy Izrael	Chairman, State Committee for Hydrometeorology
V. F. Kostin	Deputy Chairman, State Committee for Nature Protection
Aleksander P. Metalnikov	Deputy Chairman, State Committee for Hydrometeorology
A. A. Troitsky	Deputy Chairman, State Planning Committee
V. M. Kotliakov	Director, Institute of Geography, U.S.S.R. Academy of Sciences
Yu. L. Golubev	Assistant to the Chairman, State Committee for Hydrometeorology
Yu. V. Vakaljuk	Chief, Division of Global Geophysical Problems, Climate Change and Economic Consequences, State Committee for Hydrometeorology
B. V. Pikhanov	State Committee for Hydrometeorology, Department of International Cooperation
Mrs. N. Yu. Vail	State Committee for Hydrometeorology, Department of International Cooperation

UNITED KINGDOM

(tentative)

Name	Title
David Trippier RD, JP, MP	Minister for the Environment and Countryside
Sir John Fairclough	Chief Scientific Adviser, the Cabinet Office
Sir Crispin C.C. Tickell, GCMG, KCVO	United Kingdom Permanent Representative to the United Nations
Dr. John T. Houghton CBE	Director-General, Meteorological Office
J.G. Odling-Smee	Deputy Chief Economic Adviser; HM Treasury
Dr. David J. Fisk	Chief Scientist, Department of Environment
Dr. W. David Evans	Chief Scientist, Department of Energy
Dr. Eileen Buttle	Secretary, Natural Environment Research Council

UNITED STATES OF AMERICA

(confirmed)

Name	Title
Nicholas F. Brady	Secretary of the Treasury
Manuel Lujan, Jr.	Secretary of the Interior
Clayton Yeutter	Secretary of Agriculture
Robert A. Mosbacher	Secretary of Commerce
Admiral James D. Watkins (Ret)	Secretary of Energy
William K. Reilly	Administrator, Environmental Protection Agency
Richard H. Truly	Administrator, National Aeronautics and Space Administration
John A. Knauss	Under Secretary of Commerce for Oceans and Atmosphere; and Director, National Oceanic and Atmospheric Administration
Erich Bloch	Director, National Science Foundation
Richard Schmalensee	Member, Council of Economic Advisers

ZAIRE

(tentative)

Name	Title
Citoyen Lobo Kanza Kanza	Secretary of State (Deputy Minister); Ministry of Environment and Conservation of Nature

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
06. Memo	Redaction of five paragraphs of material related to FRG Position Paper on White House Conference on Global Change (1 pp.)	4/5/90	(b)(1)	

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: Climate Change, White House Conference on Global (1990) [3]

Document Declassified
(Document Follows)
By JP (NLGB) on 11/23/98

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Re-review Case #:	2005-0426-S	**Appeal Disposition:**	
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AR Disposition:	Released in Full	**MR Disposition:**	
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DELEGATE ATTENDANCE SUMMARY
5 April 1990 (Time:1700)

The following is a current status report of countries attending the White House Conference on Global Change as of **500 PM on 5 April 1990.**

I. TOTAL COUNTRIES ATTENDING:

1. **Australia***
2. Brazil (2)
3. Canada (4)
4. FRG (10) **new**
5. France (10)
6. India (4)
7. Indonesia (10)
8. Italy (10)
9. Japan (10) **new**
10. Mexico (10)
11. Netherlands (10)
12. **Nigeria***
13. Norway (10) **new**
14. OECD (5)
15. Poland (10) **new**
16. U.K. (8)
17. USA (10)
18. USSR (10) **new**
19. Zaire (1)
20. EC (6)

Total Countries Attending: 20

Total of number of delegates to-date: 140

*** Bold type no data to date**

II. TOTAL NUMBER OF COUNTRIES SUBMITTING:

A. Tentative delegation list:

- **Total: 8**
- **Partial: 5**
- **None: 2**

B. Confirmed delegation list:

- OECD
- **FRG (new)**
- Indonesia
- **Norway (new)**
- **USA (new)**

C. Total number of developing countries:

- **6 LDC's**
- **Poland**

III. PERSONAL/CONTENT DATA:

A. Personal: 0

B. Written Content:
- OECD
- U.K.
- Australia
- **FRG Position Paper (new)**

C. Oral: Norway

IV. RECENT DEVELOPMENTS:

A. FRG: Position Paper. FRG has laid a marker by formal letter to Dr. Bromley by sending a formal position paper:

- "necessary actions must not be deferred or delayed, merely because it has been possible to clarify conclusively all the complicated scientific interrelationships associated with an environment threat"
- "...the risks threatening the earth's atmosphere necessitates immediate and extensive action at national and international levels"
- "..the government is convinced that immediate measures must be taken...such as the limitations of CO_2 emissions, the conservation of forests and the reduction of emissions from agriculture and waste management"
- "...the federal government therefore proposes that WHC also deal with response strategies and immediate measures in a plenary discussion...it therefore requests that the conference agenda be adapted accordingly."

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
07. Memo with Attachments	From Karl Th. Paske, Representative of the Embassy of the Federal Republic of Germany, to D. Allan Bromley Re: Position Paper of the FRG for the White House Conference on Science and Economics Research Related to Global Change SENT FOR AGENCY REFERRAL (3 pp.)	4/3/90	(b)(1)	

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: Climate Change, White House Conference on Global (1990) [3]

Document Declassified
(Document Follows)
By JJ (NLGB) on ____

Date Closed:	12/8/2004	**OA/ID Number:**	29150-004
FOIA/SYS Case #:	1998-0004-F[1]	**Appeal Case #:**	
Re-review Case #:	2005-0426-S	**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
AR Case #:	98-0004-F/1	**MR Case #:**	
AR Disposition:	Released in Full	**MR Disposition:**	
AR Disposition Date:	8/14/1998	**MR Disposition Date:**	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

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]

C. Closed in accordance with restrictions contained in donor's deed of gift.

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Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
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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

AC HAS SEEN 4/6/90

Botschaft
der Bundesrepublik Deutschland
Embassy
of the Federal Republic of Germany

Washington, April 3, 1990
4645 Reservoir Road, N.W.
Washington, D. C. 20007 • 1998
USA
Tel.: (202) 298 • 4000

Az.: _____
(Bei Antwort bitte angeben)

The Honorable
Dr. Alan Bromley
Assistant to the President
for Science and Technology
OEOB
Room 358
17th St. & Pennsylvania Ave., N.W.
Washington, D.C., 20406

Dear Dr. Bromley,

I have the honor to transmit to you the enclosed Position Paper of the Federal Republic of Germany for the White House Conference on Science and Economics Research Related to Global Change to be held in Washington, on April 17 and 18, 1990.

Sincerely yours,

Karl Th. Paschke

Karl Th. Paschke
Minister

Position Paper of the Federal Republic of Germany for the White House Conference on Science and Economics Research Related to Global Change, Washington, April 17 and 18, 1990

As the Federal Chancellor stated in his letter of reply to President Bush, the Federal Government attaches maximum significance to the practical and political aspects concerning Global Change. This applies in particular to Global Climate Change. These challenges cannot be met by national measures alone. They demand, however, increasingly close international cooperation and a greater readiness to take action.

Complex environmental problems cannot be effectively tackled without sufficient knowledge of their causes and consequences. Large-scale measures require sound fundamental knowledge. Necessary action must not be deferred or delayed merely because it has not been possible to clarify conclusively all the complicated scientific interrelationships associated with an environmental threat. On the contrary, the precautionary approach demands that action be taken now, in our own interest and the interest of future generations.

The increase in the greenhouse effect is caused by a series of trace gases, particularly CO_2, which are emitted as a consequence of human activities. The Federal Government implemented a climate research program as early as 1982. A research program concerning ozone was submitted as the German contribution to climate and atmospheric research in 1988. In 1989 the Government decided to place emphasis on research into the greenhouse effect, and approved an energy research program in 1990. The Federal Government has increased its budget for climatic research by 600 percent in the last few years. A further rise is envisaged.

In 1987, the German Bundestag set up a Study Commission entitled "Preventive Measures To Protect the Earth's Atmosphere", in which both Members of Parliament and renowned scientists are working together. This Commission has in the meantime presented a first report which has also been submitted to Washington in English.

This report contains a comprehensive survey of the possible developments and effects resulting from ozone disintegrations in the stratosphere as well as the increased greenhouse effect in the troposphere. Further reports on the significance of forests in the climate change and on the possibilities for reducing CO_2 emission levels will soon be available.

The results of the Federal Government research and the work conducted by the Study Commission have led to sound findings which largely correspond to investigations carried out by scientists from other countries.

Based on the first report of the Study Commission, the German Bundestag reached the unanimous conclusion on 9 March, 1989 that

"the risks threatening the Earth's atmosphere necessitate immediate and extensive action at national and international level."

The Federal Government is of the opinion that further climatic research is necessary. However, the Government is also convinced that immediate measures must be taken in important areas, such as the limitation of CO_2 emissions, the conservation of forests, and the reduction of emissions from agriculture and waste management.

The Federal Government therefore proposes that the White House Conference also deal with "Response Strategies" and immediate measures in a plenary discussion. The German Delegation is prepared to make an introductory contribution within the scope of this discussion. It therefore requests that the Conference agenda be adapted accordingly.

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
08. Report	U.S. Review of the Executive Summary of the Policymakers Summary, prepared by Robert T. Watson (4 pp.)	4/8/90	P-5	

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: Climate Change, White House Conference on Global (1990) [3]

Open on Expiration of PRA
(Document Follows)
By SP (NLGB) on 5/12/05

Date Closed:	12/8/2004	**OA/ID Number:**	29150-004
FOIA/SYS Case #:	1998-0004-F[1]	**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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April 8, 1990

U.S. Review of the Executive Summary of the Policymakers Summary

Prepared by Robert T. Watson

There is a general concensus (more than half the U.S. reviewers specifically commented) that the executive summary does not reflect the tone of the main assessment. While none of the U.S. reviewers disputed that a continued increase in the atmospheric abundances of radiatively active (greenhouse) gases would lead to an increase in global mean temperatures, all other forcing functions remaining constant, many felt that the executive summary, and the Policymakers summary, does not reflect the current state of scientific uncertainty. In particular, it does not reflect the current state of uncertainty regarding the ability of General Circulation Models to predict the magnitude and timing of climate change, either at the global, let alone regional scale.

While it is crucial that the executive summary of the Policymakers summary provide a clear message of what the current "best guess" of future climate changes may be, it is equally important to explain our assessment of scientific uncertainties. I believe that it would be better to increase the length of the executive summary (up to 2 full pages), so that the uncertainties and scenarios can be adequately discussed.

All references to "man" should be changed to anthropogenic or human.

I will summarize the comments of the U.S. reviewers as well as attaching their original detailed comments.

I believe that we should go away from the style of this executive summary of "We are certain of the following", Our best tools predict ....", "Our best judgement is that", "We calculate with confidence that", "To improve our predictive capability, we need". This style leads to a disconnect between words like "predict" and "will". In all cases we should state that these are predictions. We were always very sensitive to this point in all ozone assessments. The overall effect is that we appear to be more certain about the predictions than is the case. I will comment (section by section) using the current format.

We are certain of the following:

2 (6/7)
- (i) Two reviewers question the value of 30 C, stating that this number does not account for the differences in planetry albedo that would occur without greenhouse gases.
- (ii) Stress, the "natural" greenhouse effect is real

2 (9/11) Should note that:
- (i) tropospheric ozone is a greenhouse gas whose concentrations are controlled by emissions of methane, non-methane hydrocarbons, carbon monoxide, and oxides of nitrogen;
- (ii) that the main greenhouse gas is water and its abundance is predicted to change in response to changes in radiative forcing;
- (iii) Modify last sentence to say, "in the absence of other effects"

2 (9/11)
- (i) Should add two or three sentences that discusses the current state of knowledge about sources and sinks of greenhouse gases and

implications for policymaking, e.g., note that (i) the sinks of carbon dioxide are poorly defined affecting our understanding of it's lifetime and future airborne fraction, hence the relationship between emissions and future atmospheric concentrations; (ii) individual sources of methane and nitrous oxide are inadequately quantified.

(ii) Should add one or two sentences stating that climate is naturally variable. Could quantify natural variability, e.g., 5-7 degrees, globally, between glacial and interglacial periods, and 2 degrees in historical times.

Our best tools predict that,.....

2 (17/21) This section should be changed.

(i) The scenario(s) must be defined

(ii) Serious consideration should be given to showing the results of the other IPCC scenarios unless we can justify why we only use the "high"scenario. Showing only this scenario is being interpreted that WG #1 is biased and is trying to exaggerate the likely changes. We should note that the CFC emissions are likely too high (given the current renegotiations of the Montreal Protocol) and carbon dioxide emissions possibly too low (given the "bottoms-up" country analysis) in the "high scenario".

(iii) The uncertainties associated with such temperature projections must be given. Discuss limitations of GCMs, including, ocean dynamics, and the incorporation of cloud-radiation, ocean-atmosphere, and land-atmosphere interactions. Mention how these uncertainties affect our ability to have confidence in predicting the magnitude and timing of climate change, especially at the regional level, i.e., mention that the treatment of clouds affects the magnitude of the predicted warming, while the treatment of ocean circulation affects our prediction of the timing of global warming.

(iv) We need to stress that this is the predicted "realized"warming.

(v) We need to define where the "probable" range comes from, i.e., from the predicted range of "equilibrium" temperature change for an equivalent doubling of carbon dioxide, and the quantitative effect of the thermal lag of the ocean.

(vi) Should discuss why the central value for doubled carbon dioxide is is 2.5, not 3.0 degrees C (i.e., skewed uncertainties).

(vii) If we are going to present predictions of precipitation and evaporation changes then we need to indicate the level of uncertainty in these predictions. Several U.S. scientists suggest that predictions of precipitation changes should not be presented as they are so uncertain.

(viii) Could note that if the global mean temperature did increase by 3.5 degrees then the Earth's temperature would be higher than at any time during the last 100,000 years.

(ix) Can we separate out the predicted temperature changes from pre-industrial to now, then now to the years 2020 and 2070 (maybe more useful to policymakers).

2 (23/26) (i) Several U.S. scientists suggested that this summary is inconsistent with the main document, i.e., our confidence in the accuracy of predictions of regional climate change are so uncertain that this

section should be deleted. I believe that the summary should state how our confidence in regional climate predictions is much lower than in global predictions, but note where the models (at the continental scale) show consistency (not to be confused with accurate predictability).

(ii) saying regional changes will be different from global changes needs some additional explanation. Could note that one robust model prediction is amplified warming at high latitudes in winter in the northern hemisphere.

(iii) A couple of sentences should be added to explain which climatically important parameters cannot yet be predicted with any accuracy, e.g., interannual climate variability, changes in the distribution of rainfall patterns within a season, frequency and severity of severe storms.

2 (28/32) (i) Predicted sea level changes should be given for same dates as temperature changes. If the results from more than one IPCC scenario are presented then this section would also have to modified.

Our best judgement is that:

2 (37/38) (i) This "observed" temperature increase is qualified in the main assessment (data quality--e.g., impact of urbanization"). Surely, the executive summary should also be qualified, and not be stronger than the main assessment.

2 (40/42) (i) A couple of U.S. reviewers suggest that this wording is biased and that the main text is softer than this statement. As written it suggests that at least some of the increase is due to greenhouse gases--can we prove this suggestion? It could have been phrased equally as well, "the observed increase is consistent with natural variability".

(ii) We need to point out that the size of the observed warming is at the lower end of the range of climate predictions and that the shape of the observed increase is not consistent with "greenhouse forcing" alone, and that because of internal natural climate variability and changes in other forcing functions of the system, cause and effect cannot be established.

2 (44/46) Can we prove that an increase in the mean temperature will mean that there will be more hot days. Several U.S. scientists argue that:

(i) because the temperature increase over the last 100 years is primarily due to an increase in the minimum (night-time) temperatures, and not an increase (more likely a decrease) in the maximum daytime temperatures, how can we say that there will be an increase in the number of days with high temperatures.
(ii) there could be a change in the temperature distribution without increasing the number of hot days.

2 (48/51) (i) Need to be more explicit about the potential positive effects of carbon dioxide (increased productivity and increased water-use

efficiency by plants). Increased water-use efficiency may make plants more drought resistence.

(ii) Ecosystems do not migrate, only species.

(iii) Increased soil temperatures may increase productivity.

We calculate with confidence:

3 (4/8)

(i) The comments about carbon dioxide should include the past and present.

(ii) "changing climate" should be replaced by "changing radiative forcing".

3 (10/12) Be specific about what reductions are needed for each gas, don't lump all the long-lived gases together as it is a little confusing. We must point out how there are uncertainties in the carbon dioxide numbers because of the uncertainties in its sinks (hence lifetimes).

3 (14/18) Need to qualify the comment about "long lag".

(i) there is no true lag

(ii) the magnitude of the "lag" is proportional to the lifetime of the gas. Therefore, the statement, as written, is only true for long-lived gases, e.g., would not apply to tropospheric ozone. We should be more specific, and relate the lag to the lifetime of each gas.

To improve our predictive capability, we need:

3 (23/32)

(i) This section should be written as a paragraph. There is an implied order of priority.

(ii) The section should also be more specific about what types of long-term observations are needed, what type of process studies, and what types of modeling. For example: (i) mention that GCMs need higher spatial resolution, and an interactive ocean GCM; (ii) that we need an improved understanding of cloud-radiation interactions, land-surface interactions; ocean-atmosphere interactions, and ocean circulation; and (iii) the observing systems need to balanced between in-situ and space-based.

(iiii) The paragraph should stress that the program needs to study ecosystem response as well as the physical climate system.

ALLAN BROMLEY

THE WHITE HOUSE
WASHINGTON

April 12, 1990

Gov. John Sununu:

Dear John:

As a consequence of some foul up in my office I had been told last evening that this morning's Senior Staff meeting rather than Friday's was cancelled. Hence my absence.

Enclosed herewith, first a draft of the short statement on climate change that you requested. What I did with help from Bob Watson, Nancy Maynard and several others is prepare something more like what I think the Executive Summary of the IPCC Working Group #1 should be like. Please let me know what changes

or additions you may wish.

Also enclosed is a copy of the talk I gave yesterday to the National Press Club. It appears to have been reasonably well received.

Warren Washington has sent me a copy of his book that describes his 3D model in detail and is bringing with him, on Monday 16, the 1-D model that he is prepared to install on your computer together with the data listings that you requested.

Sincerely

Stan

April 11, 1990

Climate Change

The Climate System:

The Earth's climate is controlled by the input energy from the sun, by the radiative balance of the atmosphere and by internal processes within the climate system. The radiative balance depends upon the input of solar radiation and the atmospheric concentrations of radiatively active trace gases (i.e., greenhouse gases), clouds and aerosols. To predict changes in the climate system requires an understanding of future changes in the atmospheric concentrations of greenhouse gases and aerosols, and the processes that control the response of the climate system to natural and human-influenced changes in the radiation balance.

Changes in the Forcing of the Climate System:

Natural greenhouse gases, primarily water vapor and carbon dioxide, and to a lesser extent, methane, nitrous oxide and ozone, keep the Earth much warmer than it would otherwise be. It is well documented that since the industrial revolution the atmospheric concentrations of carbon dioxide, methane, nitrous oxide and industrially produced chlorofluorocarbons (strong greenhouse gases) have been increasing primarily due to human activities. However, there are many uncertainties concerning the magnitudes of the sources and sinks of these greenhouse gases, hence their residence time in the atmosphere. In particular, the magnitude of the uptake and release of carbon dioxide by the oceans and terrestrial biosphere, and strengths of the individual sources of methane and nitrous oxide are quite uncertain. These uncertainties limit our ability to understand the quantitative

consequences of particular emissions control strategies, e.g., it is difficult to relate future emissions of carbon dioxide to growth in its atmospheric concentration. It should be noted, however, that the time taken for atmospheric carbon dioxide to adjust to changes in sources is of order 50-200 years, determined by the slow exchange of carbon between surface waters and deeper layers of the ocean and the response of the terrestrial biosphere. Consequently, carbon dioxide emitted into the atmosphere today will influence the atmospheric abundance of carbon dioxide for centuries into the future, and the atmospheric concentration of carbon dioxide will only respond slowly to changes in emission rates.

The most reliable information on past atmospheric carbon dioxide and methane concentrations is obtained by the analysis of air trapped in polar ice cores. Analyses of ice cores from Vostock, Antarctica and Greenland have covered a full glacial - interglacial cycle and show a strong correlation between changes in temperature and changes in the atmospheric concentrations of carbon dioxide and methane. However, because of the low (limited by the rate of occlusion) temporal resolution of the ice cores it is not possible to establish whether changes in temperature initiated changes in carbon dioxide and methane, or vice-versa. While there is no rigorous model that can explain the observed carbon dioxide variations, it has been speculated that they are linked to large-scale changes in the interplay between biological, chemical and physical processes in the oceans, but the detailed mechanisms are not understood.

Predictions of Climate Change:

General Circulation Models (GCM's) are currently the best available tools with which to predict changes in the Earth's climate in response to a change in the atmospheric concentrations of trace gases or aerosols, solar activity, or surface albedo. However, it

must be recognized that the current GCM's have substantial limitations. In particular, the prediction of global climate change is very sensitive to the treatment of cloud-radiation interactions. Different cloud-radiation parameterizations in GCM models lead to significant differences, up to a factor of three, in the magnitude of the predicted global warming. Prediction of regional climate changes are very uncertain, and are particularly sensitive to the treatment of ocean dynamics and ocean-atmosphere interactions (the exchange of energy and chemicals between the atmosphere and the surface waters, and between the surface waters and the deep oceans controls the rate of predicted warming) , and to the terrestrial vegetation-atmosphere interactions (the transfer of energy and moisture between land surfaces and the atmosphere). In addition to our current lack of understanding of several key processes, today's computer capabilities severely limit the spatial resolution of the GCMs. Consequently, while the current GCMs represent the overall climatology of the present climate system quite well and all predict that the Earth's climate will warm in response to an increase in the atmospheric abundance of greenhouse gases, it is clear that the predictions of the magnitude and timing of climate changes, especially at the regional level, are considerably uncertain. In particular, accurate regional predictions of changes in the mean state and variability of climatic parameters needed to assess the impact of climatic change on agriculture, natural ecosystems, coastal regions, and water resources (such as temperature, precipitation, evaporation, soil moisture and the occurrence of severe storms at sub-continental scales) - all of central importance to the modeling of economic impacts of global warming - are not possible at this time. Other potentially important uncertainties concern feedbacks between climate change and biogeochemical cycling, and possible non-linear feedbacks within the climate system itself, i.e., a change in ocean circulation.

A key question is what do the GCM's predict for future climate changes based on trace gas emission, recognizing that there are significant scientific uncertainties, and assuming that there will be no long-term changes in solar irradiance or atmospheric aerosol

concentrations. Rather than discuss a number of complex emission scenarios it has been traditional in the scientific community to assume that the atmospheric concentrations of carbon dioxide and the other greenhouse gases will continue to increase at a rate such that there will be a radiative equivalent of a carbon dioxide doubling sometime during the middle of the next century. If this occurs then the GCM's predictions that are considered to be most likely are that: (i) the equilibrium increase in global mean surface temperature should lie between 1.5 and 4.5 degrees centigrade (highly sensitive to modeling the feedback between clouds and climate change; recent models with more sophisticated treatments of clouds have tended to predict temperature changes at the lower end of this range); (ii) between 60 and 80% of the equilibrium warming should be realized at the time of "equivalent doubling" (sensitive to the treatment of ocean circulation); (iii) global mean precipitation should increase; (iv) sea-ice extent should decrease; and (v) the predicted warming in the northern polar winter should be greater than the global mean.

There are some consistent GCM predictions of climate change at the continental scale (but not sub-continental scale) such as, (i) land areas are predicted to warm more rapidly than oceans, and (ii) mid-latitude land masses in the northern hemisphere will warm more than the global mean and be accompanied by a decrease in summer precipitation. These results carry important implications, but must be stated with lower scientific confidence than those presented above.

Observations of Temperature Changes:

The instrumental record of surface temperatures suggests an increase of between 0.3 and 0.6 degrees centigrade since the mid-nineteenth century, with an undetermined, but probably small (less than 0.05 degrees centigrade) artificial component due to urbanization.

The observation of a marked retreat of mountain glaciers in all parts of the world since the end of the nineteenth century tends to support the notion that temperatures have increased globally over the last one hundred years. However, temperatures have not increased smoothly with time, nor uniformly throughout the world. Several points should be noted: (i) the majority of the temperature increase occurred before 1940, prior to most of the anthropogenic increase in the atmospheric concentrations of greenhouse gases; (ii) there is little evidence that the continental U.S. has warmed since 1900; (iii) the northern hemisphere cooled between 1940 and the early 1970s, while the southern hemisphere continued to warm, albeit at a very slow rate; (iv) there have been significant differences in regional changes, especially in the northern hemisphere since 1950; and (v) from 1975 to 1982 a more general warming occurred, followed by little global warming since 1982. It is important to recognize, however, that coupled ocean-atmosphere GCM's predict a highly variable global warming signal, moreover, substantial regional variations are expected.

Detection of the "Anthropogenic Greenhouse" Signal:

The Earth's climate is inherently variable on all timescales, both regionally and globally. Hence, the challenge is to detect an "anthropogenic greenhouse" signal amidst the natural variability of the system. While it can be stated that the observed global mean temperature increase over the past 100 years is broadly consistent with theoretical predictions of climate change, it should be noted that the implied climate sensitivity of the actual system would then be in the lower one-third to one-half of the range predicted by GCM's. In addition, natural variability of the climate system may be as large as the observed changes to date, hence the observed changes could be wholly attributable to natural variability or possibly natural variability could have masked (due to natural variability causing a decrease in temperatures) a larger "anthropogenic greenhouse" signal.

Consequently, the current observations cannot confirm the presence or absence of an "anthropogenic greenhouse" signal. Detection of an "anthropogenic greenhouse" signal will require determining trends in both forcing functions and several climatically important parameters, coupled with a quantified understanding of natural variability, and the use of time-dependent coupled ocean-atmosphere GCMs.

Sea Level:

Although the data are difficult to interpret, the best scientific assessment is that over the past 100 years, sea level has risen at an average rate of rise of 1.0-2.0 mm/yr. The uncertainties are large, but the principal causes of this rise are consistent with the expected thermal expansion of the oceans and the melting of mountain glaciers. Regional values differ considerably from global values and predicting future conditions is even more uncertain. If the global mean surface temperature increases, then sea level is predicted to rise, primarily due to to the thermal expansion of the oceans and to a melting of some land-ice. The current predicted range of sea level increase associated with an increase in carbon dioxide and the other greenhouse gases, lies between about 10 and 30 cm, at the time of a radiative equivalent of a carbon dioxide doubling (sometime during the middle of the next century). Accurate predictions remain difficult, and somewhat controversial, because of the predicted increased snow accumulation over the Antarctic continent.

Ecological Systems:

Biological Productivity: Where temperature is limiting, warming of soils would increase nutrient availability to plants with potential for increased productivity. Increased

temperature will affect respiration more than photosynthesis, possibly reducing carbon stored in terrestrial ecosystems resulting in a positive feedback on atmospheric carbon dioxide concentrations. Higher atmospheric carbon dioxide concentrations can increase photosynthesis with potential increases in net production, but the duration of "carbon dioxide fertilization effects" is unknown. However, while there is some knowledge of the responses of biological production processes to changes in parameters of the physical environment, how these integrate over the life cycle of even one species interacting in a complex of other species is unknown.

Ecosystem Composition: Species will respond differently to changes in temperature, precipitation, and atmospheric carbon dioxide, either singly or in some combination. However, exactly what these responses will be is not known. Also unknown are the changes that will occur among species, including plant-animal and plant-microbe interactions-- both beneficial symbioses as well as insect and fungal pathogens, that affect the structure of ecosystems. GCM's predict that global mean surface temperatures may change much more rapidly in response to an increase in greenhouse gases, an order of magnitude or more, than they did during ice age cycles. If this were to occur, some species will not be able to migrate or otherwise adapt to the changing climate and become extinct. Offsetting this will be the possible genetic differentiation and expansion that might occur as habitat boundaries are altered, with creation of new barriers to reproduction and dissolution of some old barriers. However, extinction is likely to be more frequent than speciation, further decreasing biological diversity.

Marine Ecosystems: The historic record leaves little doubt that global warming will have an impact on marine planktonic organisms. The structure and productivity of marine ecosystems are strongly influenced by ocean circulation and mixing, physical parameters tightly linked with climate. In high latitudes, the distribution of sea ice is especially

important, both for plankton and marine mammals and birds. In sub-polar and temperate regions, physical, chemical and biological parameters are highly variable and the system behavior consequently unpredictable. Thus, effects of warming or other changes are similarly uncertain. Warming affects vertical mixing and in turn nutrient supply, a major determinant of ocean productivity. Again, while there is considerable knowledge of specific processes and specific parts of the global oceans, the integration of this knowledge is incomplete and significant gaps in understanding exist.

Scientific Research Needed to Reduce Scientific Uncertainties:

To improve our current understanding of: (i) the natural and human-influenced processes that control the Earth's climate, and (ii) the impacts of climate change at the regional scale, will require an internationally coordinated program of space-based and ground-based research. This research program will need to: (i) establish an integrated long-term program of systematic observations of the Earth's system; (ii) improve our understanding of the physical, chemical, biological, geological, and social processes that influence the Earth's environment and its responses; and (iii) develop integrated predictive models. In particular, we need to document the natural variability of the Earth's climate, and to improve our understanding and modeling of: (i) cloud-radiation feedbacks; (ii) the exchange of energy between the atmosphere and the surface waters of the ocean, and between the surface and deep waters of the ocean; (iii) the cycling of carbon and other key elements between the atmosphere, land and oceans; (iv) the exchange of water and energy between land surfaces and the atmosphere; and (v) the current structure and functioning of ecosystems, and their response to environmental changes.

Summary of Areas of Scientific Uncertainty

a. *Hydrological cycle:* primarily cloud-radiation and land surface-atmosphere interactions. These uncertainties affect the predicted rate (magnitude at a given time) of "climate change".

b. *Role of the oceans*: the exchange of energy between the ocean and the atmosphere, and between the upper layers of the ocean and the deep ocean. These uncertainties affect the predicted rate of climate change, especially at the regional scale.

c. *Trace Gases:* quantification of the uptake and release of carbon dioxide by the oceans and terrestrial biosphere, and quantification of the individual sources of methane and nitrous oxide. These uncertainties affect our understanding of how the climate system will be "forced", hence the rate of predicted climate change. These uncertainties also limit the formation of control strategies.

d. *Predictions of regional climate change:* limitations in computer resources (spatial resolution and physical sophistication), coupled with an inadequate understanding of several key processes (e.g., the exchange of water and energy between vegetative surface and the atmosphere) limit the accuracy of regional climate change predictions at the scale required for impact assessments to be performed (sub-continental).

e. *Detection of global change:* trends in a number of climatically important parameters, coupled with a quantified understanding of natural variability; is

needed to differentiate between human-induced changes in the environment from those that occur naturally. This will require long-term observations of climatically important parameters and forcing functions, as well as careful development of time-dependent coupled ocean-atmosphere GCM's.

Key Talking Points

1. The Earths climate is highly variable

2. Human activities are increasing the atmospheric concentrations of greenhouse gases, but uncertainties about their sources and sinks limit the formulation of effective control strategies.

3. General Circulation Models are the best tools to predict future changes in climate. While all GCM's predict the Earth's temperature will increase in response to an increase in the atmospheric concentrations of greenhouse gases, it must be remembered that there are numerous scientific uncertainties concerning the prediction of the magnitude and timing of climate change, especially at the regional scale. These are caused by inadequate spatial resolution in the GCM's and an inadequate understanding of many important processes. The models have to simplify the role of clouds, oceans, and terrestrial vegetation.

4. Observational evidence suggests that the global mean surface temperatures have increased by between 0.3 and 0.6 degrees centigrade within the last one hundred years, but because of natural variability is not possible to ascertain the cause of the observed increase. The observational record cannot be used to confirm or refute the presence of an "anthropogenic greenhouse" signal.

5. If a global warming were to be caused by increasing atmospheric concentrations of carbon dioxide and other long-lived gases (e.g. CFCs

and nitrous oxide) then even with significant reductions in their emissions it would take a very long time, decades to centuries, to reverse the "anthropogenic" warming.

6. Predictions of changes in agriculture and natural ecosystems are not only limited by a lack of reliable regional climate change predictions, but also an inadequate understanding of how biological productivity and ecosystem composition will respond to environmental change.

THE MAKING OF A GREENHOUSE POLICY

D. ALLAN BROMLEY
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and Director, Office of Science and Technology Policy
Executive Office of the President

National Press Club
Washington, D.C.
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When the media describe a scientific advance, they often focus on a particular individual or event, as if the advance derived entirely from that source. Scientists working in the field typically know the situation to be much different. Many steps are needed before a particular advance can occur, and much needs to be done for an insight to be integrated into an existing body of knowledge.

Similarly, in describing the formation of policy, it is often easy to overemphasize a particular incident: a clash of personalities, a pivotal document, the meeting at which everything becomes clear. I wish it were so simple. In fact, I have often found policymaking to be somewhat similar to scientific research, both in its rewards and its frustrations. Thomas Jefferson described science this way: "A patient pursuit of the facts, and cautious combination and comparison of them, is the drudgery to which man is subjected by his Maker if he wishes to attain sure knowledge." He might as well have been describing how you put together the fifth draft of a policy statement.

In a somewhat less solemn fashion, the making of policy has also been likened to the mating of elephants -- it takes place at a high level, it involves substantial trumpeting and thrashing about, and it takes a long time to produce any tangible results.

What I would like to do today is describe the process by which the Bush Administration has been forming a national policy -- and contributing to an international policy -- on global environmental change. You will be hearing much about that policy over the next few weeks, largely because of an international White House Conference on Scientific and Economic Research Related to Global Change that I will have the pleasure of cochairing next Tuesday and Wednesday. But that conference is just one step in the much larger process of trying to understand and respond to the possible adverse effects of global change. I have spent much of my time since coming to Washington last summer on this subject. And I believe that the actions the Bush Administration has taken -- and will be taking -- in this area amply demonstrate the President's commitment to dealing responsibly with this issue.

A POLITICAL AWAKENING

The term "global change" encompasses such diverse but interrelated issues as ozone depletion, greenhouse gas emissions, climate change, sea level changes, deforestation, levels of biodiversity, and energy demands. But much of the public's attention has focused on global warming. And I don't think that anyone can look at the possibility of global warming without being struck by an immediate paradox.

The enhancement of the greenhouse effect is one of the most long-term and global problems that we face. As such, it will require a long-term and global response -- not what might be described as slam dunk solutions.

Yet the political atmosphere surrounding global warming resembles nothing so much as a crisis. A remarkable number of pieces of legislation have been introduced on Capitol Hill, and the latest research results -- some emphasizing and some minimizing the potential impacts of global warming -- make the front pages of newspapers.

There are several quite understandable reasons for this widespread concern, including the fact that four of the warmest years on record have occurred in the 1980s. But I believe that much of the current ferment still derives from the summer of 1988. In that single season, a severe drought struck the Midwest, much of the nation sweltered under unusually high temperatures, forest fires scorched large areas of the West, and a particularly strong hurricane devastated the Caribbean. The greenhouse effect made the covers of Time and Newsweek -- even though scientists cannot yet, in any convincing fashion, connect these events of that summer to the greenhouse effect.

This political awakening has driven the greenhouse effect toward the top of the national and international political agendas. It should be remembered, however, that scientists have been speculating about enhancements of the greenhouse effect for decades and more. The Swedish chemist Svante Arrhenius predicted, in 1896, that the temperature of the Earth would go up 4 to 6 degrees Celsius if levels of atmospheric carbon dioxide doubled -- a remarkably prescient prediction given that, until the role of clouds were incorporated more accurately into global circulation

models, they estimated temperature increases of only slightly less. As early as 1957, Roger Revelle and Hans Suess wrote about the "large-scale geophysical experiment" that we are conducting by releasing carbon dioxide into the atmosphere.

Scientists know much more about the Earth and its components now than they did when these early predictions were made. General circulation models mimic global climate reasonably well. And we can observe the Earth from space, which has made a deep impression not only on our understanding of the Earth but on our sense of the planet as a unified, somewhat fragile home.

But what we do know about the Earth is still dwarfed by what we do not know. I know that journalists are expected to answer the four W's in the first paragraphs of their stories: who, what, where, and when. Suffice it to say that it would be very difficult to write a first paragraph describing the greenhouse effect.

There is a general consensus among scientists that continued loading of the atmosphere with greenhouse gases could lead to warming. However, the uncertainty and controversy center around the magnitude, rate, and timing of a warming.

In addition, there is a general consensus that the planet has warmed up by about 0.5 C during the past century. But very few scientists would claim that they are yet able to determine whether any of that warming can be attributed to a greenhouse effect or whether it represents a natural fluctuation. And although some climate models predict a warming of between 1 and 2 C from a doubling of atmospheric carbon dioxide -- although there is still large uncertainty as to whether this doubling will occur in 2050 or in 2200 -- it is also true that the historical record shows that the natural background temperature could, over this same period, go up or down by a similar amount, leaving us with no change or with twice the model predictions. We simply do not yet know.

We are also only beginning to understand what the impacts of a potential warming might be on agricultural productivity, sea level changes, biological productivity in the oceans, shifting vegetation patterns, storm patterns and severity, droughts, and the like. We are even further from any quantitative understanding of the corresponding economic impacts, as I shall discuss in a moment.

Two of the most severe difficulties involve the treatment of clouds and of oceans in general circulation models. Until recently, geoscientists did not even know if clouds warm or cool the Earth. We still do not know for certain whether the increased cloudiness associated with a warmer Earth will augment or counteract a greenhouse effect. It will depend on the nature and altitude of the clouds.

Regarding the oceans, we know that only about half of the carbon dioxide released through fossil fuel combustion and deforestation remains in the atmosphere. For years, researchers assumed that the rest was being sequestered in the oceans, but recent studies indicate that no more than a quarter probably ends up there. Where does the rest go? We still are not sure, although some suggest it is in temperate latitude biomass.

Uncertainties regarding the behavior of clouds and oceans also contribute to one of the most vexing difficulties of current atmospheric models: their inability to make accurate regional predictions. Models still disagree about such fundamental questions as whether the centers of continents will get wetter or drier if the Earth warms. Yet these regional predictions are essential to assess the possible impacts of global change.

Because of the limitations of models, we must remain aware of the potential for surprises. The development of the ozone hole over Antarctica was such a surprise. The hole develops through a mechanism that was not included in earlier models of ozone destruction, and as a result was found almost by accident. We need a careful program of observing and monitoring the Earth to detect any such surprises caused by our emission of greenhouse gases.

What the ozone hole has demonstrated beyond question, however, is that, contrary to long-held assumptions, our atmosphere is <u>not</u> so large, nor its inertia so great, that human activities cannot affect it on human time scales. Human release of ~~chlorofluorocarbons~~ combined with unique meteorological conditions has indeed created the ozone hole -- through well understood chemical mechanisms --in only a few decades at most.

Lewis Thomas, among others, has compared the Earth to a living organism, and in particular to a single cell. The comparison is certainly apt in this regard: as

much as we still have to learn about the nature of life, about how it developed and where it is going, we have as much to learn about the nature of the Earth.

THE NATIONAL RESEARCH AGENDA

Bertrand Russell once wrote: "The most savage controversies are those about matters as to which there is no good evidence either way." Global warming comes dangerously close to falling into this category. As research reveals more about how human activities can influence climate, we will have a much less controversial basis on which to take actions.

The U.S. government is now engaged in a large-scale, integrated program to develop the understanding that will guide future policy decisions. That program is known as the U.S. Global Change Research Program, and it was established by the interagency Committee on Earth Sciences chaired by Dallas Peck of the U.S. Geological Survey. The Committee consists of directors of independent agencies and of assistant secretaries of cabinet departments doing research on the global environment. Working groups organized under the committee consist of the senior program managers working in a particular area. For example, the U.S. Global Change Research Program was organized by the committee's Working Group on Global Change, chaired by Robert Corell of the National Science Foundation and incorporate the programs of seven different agencies.

The FY 1991 budget that President Bush sent to the Hill at the end of January -- reflecting the compelling case made by the CES for its integrated, national program -- called for a 57 percent increase in funding for this program, to a total of over $1 billion. The proposed funding would significantly expand research, data gathering, and modeling activities through a carefully balanced mix of ground-based and space-based research.

I might say, by the way, that the success of the Committee on Earth Sciences has acted as a model for similar efforts by the Office of Science and Technology Policy. We have recently reorganized and revitalized the Federal Coordinating

Council for Science, Engineering, and Technology -- the parent body of the Committee on Earth Sciences -- and have established a number of new interagency committees in such areas as education, the life sciences, and technology and industry. In this way, we hope to bring a much greater integration and coordination to a number of important areas of science and technology.

THE WORKING GROUP ON GLOBAL CHANGE

The Committee on Earth Sciences focuses on the research aspects of global change. The policy analog to the CES is the Working Group on Global Change, which President Bush established last fall under the Domestic Policy Council, one of two senior, Cabinet-level policy councils within the White House. The Working Group, which I chair, provides Cabinet-level coordination on global change issues and is an important source of information and advice for the President.

Shortly after it was established, the Working Group called for three specific studies of global change. The first looked at the economic costs of both global change and responses to possible change; it also considered the potential costs of inaction. The second considered private sector concerns and activities. The third reviewed the legal precedents for international agreements and conventions on the environment. The Working Group has also been briefed by top experts on the scientific and economic aspects of global change.

The Working Group on Global Change will continue to be the focal point within the White House in considering Administration policies toward the global environment. But at this point I would like to break my promise about sticking to process and discuss some of the policies themselves. The Bush Administration does not believe that further research is any substitute for action. It is clear that we are accelerating our research in the face of uncertainty; but what bears emphasis as being even more important is decision making in the face of uncertainty.

As such, this Administration has already instituted a number of policies that will reduce greenhouse emissions while being fully justified for other reasons. The

President refers to these as "no regrets" or "all weather" policies, because even if our concerns about the greenhouse effect turn out to be unfounded, these policies will have other benefits. I look on them as an insurance policy against possible adverse effects of global warming.

o The United States is committed to phasing out the manufacturing and use of CFC's by the year 2000 to protect the stratospheric ozone layer -- ahead of the requirements of the Montreal Protocol -- provided safe substitutes are available. If not controlled, CFC's would account for as much as 25 percent of the greenhouse effect's increase in the next century.

o The Clean Air Act now being debated in Congress will provide for substantial reductions in the emission of other greenhouse gases by fostering more efficient use of energy. The Environmental Defense Fund has estimated that the acid rain provisions of this act alone, if implemented, would have the same effect on our greenhouse gas emissions as would removing fully one fifth of our current automotive fleet (22 million cars!) from our highways for a period of 10 years.

o The Department of Energy is developing a National Energy Strategy that will focus, in particular, on an aggressive commitment to energy conservation and to the development of non-fossil-fuel sources of energy.

These initiatives address the source component of the greenhouse gas question; turning to the sink component, the Administration is again taking concrete steps.

o The Department of Agriculture is proposing to plant a billion trees on private land across America, trees that will eventually absorb 13 million tons of carbon annually.

o Diplomatic discussions are being conducted aimed at protecting the remaining tropical forests through such mechanisms as debt-for-nature swaps.

An underlying theme in all of the Administration's global change policies is that they be based on the best possible science and that they be technically and

economically sound. These are criteria that we will continue to apply as we consider policies in the future.

THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

Thus far I have been discussing our national research and policymaking with respect to global change. But the greenhouse effect is no respecter of national or political boundaries, and its understanding demands information and analyses that span the globe. International cooperation will therefore be essential to continued progress.

The primary international forum through which these issues are being addressed is the Intergovernmental Panel on Climate Change (IPCC), which has been organized under the auspices of the United Nations Environment Program and World Meteorological Organization. The IPCC involves hundreds of scientists and government officials from a number of countries who are seeking to establish an international consensus on the likely causes and consequences of climate change.

The IPCC is conducting its activities through three working groups. The first, which is chaired by the United Kingdom, is seeking to develop a better scientific understanding of climate change. The second, chaired by the Soviet Union, is assessing the possible environmental and socioeconomic effects of climate change. And the third, chaired by the United States, is seeking to identify potential responses to global change.

These three working groups will produce reports by the end of the summer. Policymakers around the globe will then be able to draw upon these reports in formulating national and international policies. In addition, our conference being ~~held next~~ week on scientific and economic research relating to global change is designed to complement and support these IPCC activities.

The three working groups of the IPCC met here in Washington in February, and President Bush addressed their opening plenary session. He told them, "The United States is strongly committed to the IPCC process of international cooperation

on global climate change. We consider it vital that the community of nations be drawn together in an orderly, disciplined, rational way to review the history of our global environment, to assess the potential for future climate change, and to develop effective programs."

President Bush has also expressed his support for the next logical international step: a Framework Convention on Global Change to be negotiated among the countries of the world. At the Malta Summit, President Bush proposed that the United States host the first negotiating session of the Framework Convention, and he reiterated that offer to the IPCC.

In thinking about the goals of a Framework Convention, the Vienna Convention offers a useful analogy. In 1985, the United States and 20 other countries signed the Vienna Convention for the Protection of the Ozone Layer, which established a framework for international scientific and technical cooperation. However, the Vienna Convention did not set limits on emissions. Rather, it included provisions to establish protocols as further research developed.

A Framework Convention on Global Change could serve the same function. It would build cooperation among nations and establish the mechanisms by which future steps are taken. But the United States believes that a comprehensive approach should be taken to encompass all greenhouse gas emissions on the basis of a scientifically determined greenhouse equivalent index and that possible actions should employ market-oriented approaches.

THE WHITE HOUSE CONFERENCE ON SCIENTIFIC AND ECONOMIC RESEARCH RELATED TO GLOBAL CHANGE

The reports of the IPCC working groups will be an important input to the Framework Convention, but an important complement to the IPCC will be the White House Conference being held here in Washington next week. President Bush is hosting the conference and will open and close the proceedings. I am one of the

cochairmen of the conference, along with Michael Deland of the Council on Environmental Quality and Michael Boskin of the Council of Economic Advisors.

The conference will bring together the three senior officials in science, economics, and the environment from 17 countries, the Organization for Economic Cooperation and Development, and the European Community. The conference is designed to explore what we do know about the scientific and economic questions surrounding global change, what we do not know, and when remaining uncertainties might be reduced. In addition, the conference will examine ways to more fully integrate the results of scientific and economic research into the policymaking process.

I have already mentioned some of the scientific challenges, so let me focus here on the economic ones, since in many cases they are even greater than the scientific ones. For example, one recent analysis was able to conclude only that emissions of carbon dioxide in the year 2050 are likely to be between 1.5 and 12 times what they are today.

We need much better measures of the potential costs and benefits of limiting or adapting to global change. Preliminary studies show that the costs could be very high, but data and assumptions with which to make such estimates are riddled with uncertainties.

In general, the social sciences will be as important as the natural sciences in improving our understanding of global change. Even when the physical and biological aspects of a problem are understood, all too often agreement is lacking on the underlying social, behavioral, and economic causes and consequences of an action. The conference next week will be focused at least as much on these aspects of the problem as on the purely scientific aspects. We hope in this way to add a new dimension to the international dialogue on global change.

The Conference is expected to produce a Cochairmen's report, which will set forth common actions designed to expand research and cooperation among nations. The United States will also be making a number of concrete proposals during the conference, such as a proposal for an international global change research program comparable on the international scene to the U.S. national program described above. You will be hearing about those next week.

CONCLUSION

Let me conclude with a bit of history, which I hope to relate at the conference next week because I believe that it summarizes our current situation very well.

The year after next we will be celebrating the 500th anniversary of Columbus's discovery of the new world, an event of unsurpassed importance in the course of world history. As might be expected, Columbus was an astute observer of the natural world. While he was anchored off the coast of Jamaica, Columbus noted in his journal that it rained for about an hour every afternoon. Columbus also pointed out that the same thing used to occur in the Canary and Azores Islands, but that the rain had stopped since the trees on those islands were cut down. In other words, Columbus was one of the first people to observe the effects of human beings on climate.

I think it very appropriate that Columbus should have done so, because he was engaged on a great voyage of discovery, and today we find ourselves engaged on a similar voyage. We are changing the world in ways that it has never been changed before. And yet human beings, by their very nature, cannot help but change the world.

We have no reason to fear such changes. But we must keep our eyes open, and try to understand where we are going, and change course when we have good reasons to do so. We need not sail blindly into our future. But if must keep moving forward if we are to achieve the complementary goals of an economically healthy and environmentally sound world.

REMARKS OF
DR. RONALD W. ROSKENS
ADMINISTRATOR, AGENCY FOR INTERNATIONAL DEVELOPMENT
AT THE WHITE HOUSE CONFERENCE ON GLOBAL CHANGE
WASHINGTON, D.C.
APRIL 16, 1990

A I D Luncheon Speeches

o (RECOGNIZE U.S. AND FOREIGN DIGNITARIES.)

I KNOW MANY OF YOU HAD TO MAKE A LONG AND SOMEWHAT ARDUOUS TRIP IN ORDER TO ATTEND THIS SEMINAR.

THE FACT THAT YOU MADE THAT TRIP SHOWS YOUR COMMITMENT TO ENSURING THAT THE ISSUE OF GLOBAL CLIMATE CHANGE RECEIVES THE ATTENTION -- AND POSITIVE ACTION -- IT DESERVES.

PRESIDENT BUSH SHARES YOUR COMMITMENT...AND HAS MADE ENVIRONMENTAL PROTECTION A CENTRAL THEME OF HIS ADMINISTRATION.

IN FACT...THE PRESIDENT HAS BEEN OUT FRONT IN THE EFFORT TO MAKE ALL OF US REALIZE WE EACH HAVE A ROLE TO PLAY IN BEING PART OF THE SOLUTION TO THESE GLOBAL CONCERNS.

A.I.D IS IN A UNIQUE POSITION TO WORK WITH DEVELOPING NATIONS AROUND THE WORLD TO FIND A DEVELOPMENT APPROACH THAT MAKES POSSIBLE <u>BOTH</u> ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY -- AN ESSENTIAL COMBINATION WHICH BRINGS PROSPERITY TO PEOPLE...AS IT BRINGS PROTECTION TO THE ENVIRONMENT.

LET ME MAKE CLEAR WHAT I AM SAYING.

DESPITE OCCASIONAL SHORT-TERM TRADEOFFS...LONG-TERM ECONOMIC GROWTH AND PROTECTION OF THE ENVIRONMENT CAN MARCH FORWARD HAND IN HAND.

AT A.I.D....WE PLAN ALL OF OUR DEVELOPMENT PROGRAMS WITH ENVIRONMENTAL ISSUES FOREMOST IN MIND.

WE RECOGNIZE THAT IT'S NOT ENOUGH JUST TO MAKE SURE WE'RE NOT IMPLEMENTING PROGRAMS WHICH DAMAGE THE ENVIRONMENT...WHICH IS WHY WE ARE PROMOTING DEVELOPMENT APPROACHES THAT ACTUALLY ENHANCE THE ENVIRONMENT -- SUCH AS THE AGENCY'S PROGRAM ON CLIMATE CHANGE...WHICH WILL EMPHASIZE THE NEED TO REDUCE EMISSIONS OF GREENHOUSE GASES -- PARTICULARLY CARBON DIOXIDE -- THROUGH STRATEGIES THAT ARE CONSISTENT WITH CONTINUED ECONOMIC GROWTH AND DEVELOPMENT.

A.I.D.'S DEVELOPMENT PHILOSOPHY NOW BEGINS WITH ENVIRONMENTAL CONCERNS BUILT INTO THE PLANNING FOUNDATION...FOR ULTIMATELY... WITHOUT ENVIRONMENTAL SUSTAINABILITY...THERE CAN BE NO LONG-TERM ECONOMIC GROWTH.

ONE OF MY PRIMARY GOALS DURING MY TENURE AS ADMINISTRATOR IS TO HELP DEVELOPING COUNTRIES FIND LOCAL AND NATIONAL SOLUTIONS TO ENVIRONMENTAL DAMAGE. PROBLEMS -- AND SOLUTIONS -- NEED TO BE IDENTIFIED AT A SCALE APPROPRIATE TO DEVELOPMENT PLANS.

I WANT TO ENSURE THAT OUR APPROACH IS FOCUSSED...AND THAT THE RESOURCES WE DEVOTE TO THE ENVIRONMENT ARE USED IN THE MOST EFFECTIVE MANNER POSSIBLE.

I KNOW A.I.D. HAS LONG-SUPPORTED ENVIRONMENTALLY-FRIENDLY PROGRAMS -- IN FORESTRY...ENERGY...AND AGRICULTURE -- AND WE WILL CONTINUE TO DO SO WHATEVER THE OUTCOME OF THE RESEARCH UNDER REVIEW AT THE CONFERENCE.

WE ARE POISED TO BE OF ADDITIONAL ASSISTANCE IF THE SCIENTIFIC COMMUNITY AND POLICYMAKERS GATHERED HERE DEEM IT APPROPRIATE.

A.I.D....WORKING WITH YOU...SIMPLY WANTS ITS ASSISTANCE TO DEVELOPMENT...TO MAKE SENSE AS WELL IN TERMS OF OUR GROWING SCIENTIFIC KNOWLEDGE OF OUR ENVIRONMENT.

I HOPE THIS MEETING MARKS THE BEGINNING OF A RENEWED EFFORT AMONG ALL OF US TO CONTINUE TO DISCOVER THOSE DEVELOPMENT APPROACHES...AND THEN MAKE THEM WORK.

IT'S NOT AN EASY CHALLENGE...BUT IT'S ONE WHICH WE CAN ACHIEVE IF WE ALL WORK TOGETHER.

NOW...I'VE ASKED MY COLLEAGUES FROM A.I.D. TO TALK WITH YOU AT GREATER LENGTH ABOUT A.I.D. GLOBAL CHANGE ASSISTANCE ACTIVITIES.

FIRST...DR. RICHARD BISSELL...A.I.D.'S ASSISTANT ADMINISTRATOR FOR SCIENCE AND TECHNOLOGY.

RICH...

RICHARD BISSELL
ASSISTANT ADMINISTRATOR FOR SCIENCE AND TECHNOLOGY
REMARKS BEFORE THE WHITE HOUSE CONFERENCE ON GLOBAL CHANGE

[THANK YOU ADMINISTRATOR ROSKENS]

IN DESIGNING A CLIMATE CHANGE INITIATIVE, A.I.D. HAS CHOSEN TO PURSUE ACTIVITIES THAT ARE BOTH ECONOMICALLY AND ENVIRONMENTALLY SOUND. OUR "NO REGRETS" POLICY SUPPORTS EFFORTS THAT HAVE ECONOMIC GROWTH AND OTHER ENVIRONMENTAL BENEFITS, BUT THAT ALSO REDUCE THE THREAT OF CLIMATE CHANGE DUE TO GREENHOUSE GAS EMISSIONS. AN EXAMPLE OF THIS IS OUR GLOBAL ENERGY EFFICIENCY INITIATIVE, WHICH PROMOTES COST-EFFECTIVE ENERGY CONSERVATION AND EFFICIENCY IMPROVEMENTS IN MEETING ENERGY NEEDS. ENERGY EFFICIENCY IS WIDELY RECOGNIZED AS A CRITICAL COMPONENT OF ANY CLIMATE CHANGE RESPONSE STRATEGY.

ALTHOUGH THE LONG-TERM EFFECTS OF ENVIRONMENTAL DEGRADATION HAVE IMPORTANT GLOBAL IMPLICATIONS, THE CAUSES ARE LOCAL, AS ARE THE MOST IMMEDIATE EFFECTS. SUBSIDIZED PRICES, CLOSED POLITICAL SYSTEMS, EXTREME POVERTY, LACK OF SECURE PROPERTY RIGHTS, RAPID URBANIZATION, AND SHORT-SIGHTED ECONOMIC AND ENVIRONMENTAL POLICIES ARE OFTEN AT THE HEART OF THE PROBLEM.

ENVIRONMENTAL DEGRADATION IS A MORE COMMON AND PERVASIVE PROBLEM THAN INFLATION, FOREIGN DEBT, AND ECONOMIC STAGNATION. DEFORESTATION, WATERSHED DESTRUCTION, LOSS OF BIOLOGICAL DIVERSITY, FUELWOOD AND WATER SHORTAGES, SOIL EROSION AND WATER CONTAMINATION, OVERGRAZING AND OVERFISHING, URBAN CONGESTION, AND ENVIRONMENTAL POLLUTION ARE COMMON TO THE CENTRALLY-PLANNED ECONOMIES OF EASTERN EUROPE, TO THE NEWLY-INDUSTRIALIZED COUNTRIES OF ASIA AND SOUTH AMERICA, AND TO THE UNDERDEVELOPED NATIONS OF AFRICA. WHILE WE FULLY UNDERSTAND THAT ENVIRONMENTAL CHANGES WILL OFTEN FOLLOW AS A CONSEQUENCE OF HUMAN ACTIVITY, EXCESSIVE DEGRADATION CAN REDUCE THE ECONOMIC AND SOCIAL RETURNS WE DERIVE FROM PAST INVESTMENTS,

THE POTENTIAL BENEFITS WE CAN EXPECT FROM CURRENT PROGRAMS, AND MOST IMPORTANTLY, THE QUALITY OF LIFE OUR CHILDREN WILL BE ABLE TO ENJOY.

ONE OF THE PRINCIPAL LESSONS WE HAVE LEARNED AT A.I.D. IS THAT WE CANNOT BE SATISFIED WITH TREATING THE PHYSICAL SYMPTOMS OF ENVIRONMENTAL DEGRADATION. WE MUST LOOK BEYOND THEM IN SEARCH OF THE UNDERLYING ECONOMIC FORCES THAT DEFINE THE TRUE DIMENSIONS OF THE PROBLEM; THE PROBLEM'S CAUSES, AND POSSIBLE SOLUTIONS.

THESE PROBLEMS ARE TO BE FOUND IN INDEPENDENT DECISION MADE REGARDING SCARCITY AND PRICE, BENEFITS AND COSTS, RIGHTS AND RESPONSIBILITIES, ACTIONS AND CONSEQUENCES. THIS DISASSOCIATION EXISTS BECAUSE OF A COMBINATION OF POLICY DISTORTIONS AND MARKET FAILURES. THE PREVAILING SCOPE OF MARKETS AND POLICIES LEAVES MANY RESOURCES OUTSIDE THE DOMAIN OF MARKETS, OFTEN SUBSIDIZING THEIR EXCESSIVE USE AND DESTRUCTION DESPITE THEIR GROWING SCARCITY AND RISING SOCIAL COST. THE END RESULT IS AN INCENTIVE STRUCTURE WHICH INDUCES PEOPLE TO MAXIMIZE THEIR PROFITS BY APPROPRIATING OTHER PEOPLE'S RESOURCES AND NOT INVESTING IN THE ENHANCEMENT OF THEIR PRODUCTIVITY. THE ULTIMATE COSTS ARE BORNE BY THE POOR, WHO LACK ALTERNATIVES, AND BY FUTURE GENERATIONS WHOSE INTERESTS ARE SACRIFICED TO SHORT-TERM POLITICAL AND ECONOMIC EXPEDIENCY.

WHILE ACKNOWLEDGING THE LIMITS OF ANY SINGLE DEVELOPMENT ASSISTANCE AGENCY IN THE FACE OF SUCH COMPLEX AND PERVASIVE PROBLEMS, A.I.D. IS STRONGLY COMMITTED TO ADDRESSING THESE DIFFICULT ISSUES AND WILL CONTINUE TO HELP DEVELOPING COUNTRIES CONSERVE AND PROTECT THEIR ENVIRONMENT AND NATURAL RESOURCES. OUR PROGRAMS AND ACTIVITIES ARE DESIGNED TO DEMONSTRATE THE LOCAL BENEFITS OF ENVIRONMENTALLY-SOUND TECHNOLOGIES AND MANAGEMENT PRACTICES. THEY ARE ALSO INTENDED TO HELP HOST GOVERNMENTS RECTIFY MARKET DISTORTIONS AND CORRECT MARKET FAILURES.

AT THIS TIME, I WOULD LIKE TO INTRODUCE DR. JACK VANDERRYN, DIRECTOR FOR ENERGY AND NATURAL RESOURCES, WHO WILL PROVIDE SOME EXAMPLES OF A.I.D.'S EFFORTS IN GLOBAL CHANGE AND ENVIRONMENTAL PROTECTION.

[INTRODUCE JACK VANDERRYN]

Jack Vanderryn
Director, Energy and Natural Resources
Bureau for Science and Technology

Remarks Before the White House Conference on Global Change

[Thank you Richard Bissell]

I would like to begin by sharing the Administrator's welcome to our foreign colleagues. Many of you are familiar with our agency and its work in developing countries. For those of you who are not, I would like to describe our approach to global change and environmental degradation. The examples I will mention are intended to illustrate the breadth of activities planned or on-going through the various programs of the Agency for International Development.

A.I.D.'S approach to dealing with environmental issues in the context of development begins with an effort to understand the policy and economic underpinnings of environmentally destructive, non-sustainable behavior. In doing so, we work to strengthen local analytical capabilities in designing and implementing policies that harness economic forces to benefit the environment while promoting development. For example, in Indonesia, A.I.D. is developing a new environmental and natural resources project which focuses on forest policy including reform of the forest concession system and field-oriented activities designed to demonstrate sustainable forest management.

We are enhancing environmental awareness through education and training efforts with both public and private sector decision makers. In these efforts, we are increasing our interaction with U.S. and local non-governmental and private voluntary organizations that are committed to environmental protection. For example, A.I.D. provided the seed money to a PVO in the

Dominican Republic to form a cooperative credit system for buying photovoltaic solar panels. As of the end of 1989, over 800 homes had been electrified. We have supported training seminars sponsored by the U.S. renewable energy industry which include visits to operating utility and small-scale systems. With the U.S. Forest Service, we have sponsored training programs to demonstrate sustainable forest management techniques.

A.I.D. is promoting environmentally sound energy production and use through the introduction of renewable energy and cleaner-burning fossil fuel technologies, as well as energy conservation and efficiency improvements. We are analyzing the impact energy efficiency has on reducing carbon dioxide emissions in developing countries under a variety of scenarios. In India, A.I.D. is supporting research and rapid commercialization of energy efficient end-use technologies and renewable energy systems, and joining Indian financial institutions to implement a major energy efficiency project in the power sector. In Central America, we are working with Costa Rican institutions to demonstrate the benefits of least-cost utility planning and private power generation from small hydroelectric and biomass cogeneration systems utilizing agricultural residues and wood wastes as feedstocks. In Egypt, A.I.D. is supporting energy efficiency demonstration projects in both the public and private sectors at industrial plants and commercial buildings. The first demonstration is an energy management system in a major hotel in Cairo.

A.I.D. is helping host countries develop action plans to support natural forest and buffer zone management, and maintain biological diversity. This includes increasing research on how forests can supply local needs on a sustainable basis. We are taking steps to support the completion and implementation of management plans for eight priority protected areas in Southern

Mexico. We are implementing buffer zone management projects in Madagascar, Rwanda and several other African countries. A.I.D. will join the World Bank and the Nature Conservancy, a not-for-profit U.S. organization, to protect and maintain wildlife habitats with the establishment of a nature reserve in Eastern Paraguay.

We are working with other U.S. agencies and private industry to reduce urban and industrial pollution and improve environmental quality. We are collaborating with the Environmental Protection Agency (EPA) to establish a regional Environmental Center in Budapest, Hungary. The center will be a source of information on solutions to environmental problems common to Eastern European countries, as well as increase local awareness through public education and institutional support. We are drawing on the expertise of the U.S. private industrial sector to transfer pollution control technology and experience with emission and effluent reduction strategies. In Poland, A.I.D. is working with the U.S. Department of Energy and EPA to demonstrate a least-cost technology for reduction of sulfur dioxide emissions, and to install an air monitoring system for the city of Krakow.

A.I.D. is helping implement environmentally sound agricultural techniques that help to reverse trends toward overgrazing of rangelands, declining soil fertility, deforestation, pollution, and declining soil productivity. In order to gain a better understanding of the impact of climate change on crop production, such as changes in temperature and rainfall, A.I.D. and EPA are collecting critical data through A.I.D.'s soils research network. In Peru, we have demonstrated at one site the the sustained production of 40 crops over a 17 year period. This was traditionally a slash and burn area which lead to deforestation. With our support, researchers at the International Fertilizer Development Center have been able to

raise the nitrogen retention efficiency from 40 percent or less to over 80 percent, thereby reducing fossil fuel requirements for fertilizer production, thus cutting costs, and decreasing nitrogen loss to ground water and the atmosphere. The program has been so successful that the Government of Indonesia has adopted this fertilizer and the technique for its use as part of their national rice program.

In our climate change related activities, we intend to give increasing emphasis to those A.I.D.-assisted countries that are, or may become, globally significant contributors to climate change through greenhouse gas emissions, and that are interested in collaborating with us. For example, we are now exploring with our Brazilian colleagues in the government, private and NGO sectors support for specific forestry and energy efficiency projects.

Finally, A.I.D. is enhancing its own ability to address environmental concerns across the full range of development programs through staff training and awareness programs.

In summary, A.I.D., through its energy, forestry and agriculture activities, is helping decision makers in developing countries balance economic growth and environmental protection. In order to leverage our limited resources, we are working with other U.S. government agencies, multi-lateral development banks, international research centers, and most important, government, private industry, and NGOs in host countries.

At this point, I would like to open the floor to those of you from foreign country delegations to discuss your interests. I will begin by asking Jose Goldemberg, Brazilian Minister for Science and Technology, to make some comments.

[CALL ON JOSE GOLDEMBERG]

REMARKS FOR MR. ANDERSON AT THE RECEPTION IN HONOR OF THE INTERNATIONAL DELEGATION TO THE WHITE HOUSE CONFERENCE ON SCIENC AND ECONOMICS RESEARCH RELATED TO GLOBAL CHANGE - APRIL 16, 1989

GOOD EVENING, LADIES AND GENTLEMEN, DISTINGUISHED MEMBERS OF THE DELEGATION TO THE WHITE HOUSE CONFERNECE ON SCIENCE AND ECONOMICS RESEARCH RELATED TO GLOBAL CHANGE AND OUR CO-HOST OF THE EVENING, ROBERT MOSBACHER, THE SECRETARY OF THE UNITED STATES DEPARTMENT OF COMMERCE. ON BEHALF OF ROBERT ADAMS, SECRETARY OF THE SMITHSONIAN INSTITUTION, I WOULD LIKE TO WELCOME YOU TO THE NATIONAL AIR AND SPACE MUSEUM. I AM DEAN ANDERSON, UNDER SECRETARY OF THE SMITHSONIAN.

HUMANKIND HAS FACED MANY CHALLENGES IN THE COURSE OF ITS DEVELOPMENT. PERHAPS ONE OF THE GREATEST IS RECOGNIZING THAT OUR ABILITY TO CHANGE OUR LOCAL ENVIRONMENT MAY HAVE GLOBAL CONSEQUENCES. IN ORDER TO ASSESS THE IMPACT OF HUMAN ACTIVITIES ON THE ENVIRONMENT, WE MUST HAVE AN UNDERSTANDING OF THE CRITICAL COMPONENTS OF GEOSPHERE, BIOSPHERE, HYDROSPHERE AND ATMOSPHERE.

GLOBAL CHANGE IS A PRIORITY OF THE SMITHSONIAN. IN FACT, OUR MUSEUMS AND INSTITUTES HAVE ALREADY UNDERTAKEN A VARIETY OF RESEARCH PROGRAMS DESIGNED TO EXPLORE THE MANY QUESTIONS RELATED TO GLOBAL CHANGE. WE SUPPORT A GLOBAL CHANGE PROGRAM THAT INVOLVES A BROAD SPECTRUM OF RESEARCH.

I APPLAUD YOUR PARTICIPATION IN THE CONFERENCE AND I AM ENCOURAGED BY YOUR EFFORTS TO ADDRESS THIS GLOBAL CHALLENGE.

I WOULD NOW LIKE TO INTRODUCE DR. MARTIN HARWIT, DIRECTOR OF THE NATIONAL AIR AND SPACE MUSEUM.

REMARKS FOR DR. HARWITT AT THE RECEPTION IN HONOR OF THE INTERNATIONAL DELEGATION TO THE WHITE HOUSE CONFERENCE ON SCIENCE AND ECONOMICS RESEARCH RELATED TO GLOBAL CHANGE - APRIL 16, 1990

GOOD EVENING, MR. SECRETARY, DELEGATES AND HONORED GUESTS. I WOULD LIKE TO WELCOME YOU TO THE NATIONAL AIR AND SPACE MUSEUM.. IT IS A PLEASURE TO HAVE YOU HERE TONIGHT.

NOTHING INSPIRES ME MORE WITH A SENSE OF THE COMMUNITY OF HUMANKIND THAN A PICTURE OF THE EARTH FROM SPACE. GEOGRAPHICAL AND POLITICAL DIVISIONS ARE OBSCURE IN THIS GLOBAL VIEW, BUT THE FRAGILITY OF THE PLANET IS CLEAR.

THE MUSEUM'S CENTER FOR EARTH AND PLANETARY STUDIES USES IMAGES AND DATA OBTAINED FROM EARTH-ORBITING SENSORS AND SPACECRAFT TO STUDY CHANGES TO THE EARTH'S SURFACE.

TONIGHT, WE WILL BE SHOWING YOU UNEDITED FOOTAGE FOR A NEW IMAX FILM ENTITLED BLUE PLANET, WHICH PREMIERES AT THE MUSEUM ON NOVEMENBER 2.

OUR HOPE IS THAT BLUE PLANET WILL GIVE ALL THOSE WHO SEE IT AN APPRECIATION FOR THE BEAUTY OF THE EARTH AND ITS VLNERABILITY TO CHANGE.

I WOULD NOW LIKE TO INTRODUE OUR CO-HOST FOR THE EVENING, THE HONORABLE ROBERT MOSBACHER, SECRETARY OF COMMERCE.

DRAFT: BOWERS/SMITH
4/13/90, 8:30 A.M.

NCAR (Kraus: BNC has seen 4/6/90

WHITE HOUSE CONFERENCE ON SCIENCE AND ECONOMICS RESEARCH RELATED TO GLOBAL CHANGE, APRIL 16, 1990

EVENT: SoC ONE OF 15 CO-HOSTING WELCOMING RECEPTION. PRESIDENT BUSH INVITED 17 HEADS OF STATE AND EC AND OECD LEADERS TO SEND DELEGATES TO CONFERENCE ON WORLD-WIDE SCIENTIFIC, ECONOMIC AND ENVIRONMENTAL CONCERNS.

* WELCOME: FIRST WHITE HOUSE CONFERENCE ON GLOBAL CHANGE...UNIQUE OPPORTUNITY TO WORK TOGETHER FOR WORLD (HEALTH,) PROSPERITY....ASSUME RESPONSIBILITY OF GLOBAL STEWARDSHIP.

BNC?

Health of our planet and prosperity for people.

- 2 -

doesn't this preempt Pres. unveiling U.S.?

* PRESIDENT BUSH DEFINES (GLOBAL STEWARDSHIP) AS PROCESS IN WHICH ENVIRONMENTAL AND ECONOMIC VALUES ARE BROUGHT INTO BALANCE, SERVING HUMAN NEEDS AND EXPANDING HUMAN PROSPECTS.

- 3 -

* COMMERCE DEPARTMENT -- ECONOMIC GROWTH AND PROTECTION OF NATURAL RESOURCES...BUSINESS DEVELOPMENT, TRADE PROMOTION, ECONOMIC AND SCIENTIFIC RESEARCH...LARGEST AGENCY, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, CREATED 1970, FOCUS ON RATIONAL USE OF ENVIRONMENT... SERVES SOCIAL, ECONOMIC GOALS THROUGH EXPANDING KNOWLEDGE ON OCEAN, ATMOSPHERE, SPACE, SUN...ENVIRONMENT LINKED TO ECONOMIC GROWTH../EXAMPLE OCEAN RESOURCES, U.S. COMMERCIAL FISHERMEN CAUGHT RECORD 11 BILLION POUNDS FISH IN 1988, VALUE ~~$4 BILLION~~ $1 TRILLION RESOURCE

? 6

Check Source

Healthy environment is good fusion

* CHALLENGE: TO SUPPORT ECONOMIC GROWTH AND IMPROVED STANDARDS OF LIVING THROUGH KNOWLEDGEABLE MANAGEMENT OF ENVIRONMENT AT TIME WHEN:

?! -- FOUR SPECIES PER HOUR ARE BEING EXTINGUISHED BY HUMAN ACTIVITY,

Do we want to highlight this? ?! -- COMBUSTION OF FOSSIL FUELS WORLDWIDE PRODUCES 5.5 BILLION TONS OF CARBON DIOXIDE ANNUALLY.

?! -- TROPICAL FORESTS BEING LOST AT RATE OF ONE ACRE PER SECOND, AND

Keep -- SCIENTIFIC ASSUMPTIONS ABOUT ENVIRONMENT BEING CHALLENGED DAILY.

- 5 -

* QUESTIONS TO BE RESOLVED: WHAT TO DO ABOUT OZONE DEPLETION, GREENHOUSE GASES, FOOD SECURITY, BIODIVERSITY AND ENERGY DEMANDS? HOW TO MEET NEEDS OF POPULATION EXPECTED TO DOUBLE TO 10 BILLION BY YEAR 2025?

Check Source?

* CONFERENCE GOALS:

(1) ADVANCE UNDERSTANDING OF GLOBAL CHANGE PHENOMENA,
(2) ENHANCE INTERNATIONAL COOPERATION, AND
(3) BUILD BASIS FOR INTEGRATING SCIENCE AND ECONOMIC RESEARCH INTO POLICY DECISIONS IN FUTURE.

- 6 -

-- KEY IS FREE AND OPEN ACCESS TO SCIENTIFIC AND ECONOMIC DATA.

* PRESIDENT BUSH: "THE ENVIRONMENTAL CHALLENGES THAT FACE THE UNITED STATES AND THE WORLD ARE SO IMPORTANT THAT THEY MUST BE ADDRESSED FROM THE HIGHEST LEVEL OF GOVERNMENT."

* CONCLUSION: INTRODUCE MARTIN HARWIT, CO-HOST AND DIRECTOR, NATIONAL AIR AND SPACE MUSEUM.

Brady

OPENING REMARKS TO
WHITE HOUSE CONFERENCE ON SCIENCE AND ECONOMICS RESEARCH
RELATED TO GLOBAL CHANGE

Good Morning. I am pleased to welcome this distinguished assembly of delegates to the inaugural White House conference on global change.

This is the first international conference to bring together experts in the disciplines of economics, science and the environment. Over the next two days we will have the opportunity to explore and discuss the relationship of these disciplines to the issue of global change.

We meet here to acknowledge and explore our common interest in improving and preserving the environment in the face of ever-increasing demands placed on it by the forces of expanding populations, economic growth and development and technological advances. We have gathered here because we recognize that success in managing global environmental issues will only be attained when we have developed coherent policies which fully integrate environmental solutions with economic realities. Only when we have achieved this integration of science and economics can we be assured that we are pursuing policies and programs in the best interest of the peoples of the world.

Our challenge is made all the greater by a lack of consensus among experts as to the true nature, rate and extent of changes in the global climate occurring now, and projected for the future. We cannot resolve these issues in the next two days, but we can advance and clarify the world's understanding of the relationship between the scientific and economic aspects of the

environmental challenges we face.

Our work here is the natural extension of work we have already begun in other forums. Our purpose is to complement the efforts of Intergovernmental Panel of Climate Change as it strives to identify what is known and what is still uncertain in the science of global climate change.

Here in the United States President Bush has taken the lead in focusing national attention on global climate change issues--even before taking office he commanded our attention by his description of the challenge before us. "We face," he said, "The prospect of being trapped on a boat that we have irreparably damaged--not by the cataclysm of war, but by the slow neglect of a vessel we believed to be impervious to our abuse."

Insert I attached

The Bush Administration has formulated general guidelines on issues concerning climatic change. First, nations can't afford to wait for a final resolution of the scientific uncertainties before they act. Second, while we wait for scientific advances, nations should take those actions already justified on economic and other grounds. Third, any action considered should be specific, focused on a clear goal, and cost-effective. Fourth, the most effective actions will be those that both protect the environment and allow continued economic development.

Here in the United States we are pursuing this policy framework with concrete actions. The President has asked Congress for $1 billion in the next fiscal year to study global climate change. We estimate this represents more than half of all the money spent on climate change research worldwide. A key

element of this research is an ambitious 15-year program to gather more accurate data, for which we will develop new polar orbiting satellites to gather more accurate data on oceans, clouds and land masses.

The U.S. National Oceanic and Atmospheric Administration of the Department of Commerce also supports a range of work in international climate monitoring and modeling, under The World Meteorological Organization--work that holds the potential for greater accuracy in predictions of climate trends.

The United States has also made a commitment to phase out chlorofluorocarbons by the year 2000. The U.S. Environmental Protection Agency is working with industry to find alternatives to CFC's and to control emissions of carbon tetrachloride and methyl chloroform. EPA has also extended its assistance to several developing countries who are seeking to reduce their CFC emissions, in conformance with the Montreal Protocol.

By the year 2050, well over half of greenhouse gas emissions are expected to come from developing countries. Because developing countries must be a part of any solution of global climate problems, the United States has urged their attention to these issues by requiring attention to environmental considerations in programs of the World Bank and the International Monetary Fund.

At the September 1989 annual meetings of the World Bank and IMF, President Bush called for more emphasis on the environment in national policy making, especially in promoting energy efficiency and conservation and greater protection of tropical

forests. In keeping with the President's instructions, U.S. officials have pursued environmental reforms with the OECD, and the regional development banks as well. In addition, the U.S. has stated its intention to support placing environmental issues on the agenda of the proposed European Bank for Reconstruction and Development. The United States has also supported World Bank and the U.S. Agency for International Development efforts to use debt-for-nature swaps to preserve forests and wetlands. In the recent past, swaps have been signed in Ecuador, Costa Rica, the Philippines, and Madagascar. A swap recently arranged in Zambia will help protect two of Africa's most important wetlands. While the dollar amounts involved in these swaps have been small, an important principle has been established. Thus I believe debt-for-nature swaps should play an increasing role in addressing climate change.

As these initiatives demonstrate, economic issues are intrinsically and inextricably linked to environmental concerns. We wish to preserve the environment to improve and sustain a certain quality of life for all the peoples of the world. But we must recognize that a great part of that quality of life also rests on economic development and growth. It is largely through economic growth that we can bring the nations of the world freedom from hunger, lower infant mortality, longer life expectancy and liberation from oppressive poverty. Thus we must carefully balance and evaluate the relationship between proposals to address global climate change and economic activities and policies.

Our meetings here can make a valuable contribution to establishing a common understanding and assessment of the issues. Let us work together to establish a consensus that will allow us to advance our ability to make the important decisions in the future. Let us reach agreement on areas of opportunity for cooperative action in scientific and economic research. Let us plan to integrate scientific and economics research into the policy process. Let us begin to build partnerships for pursuing that research. If we can achieve agreement on these issues we will have taken an important step towards meeting the challenge of global climate change.

And as we pursue these goals, let us do so in the spirit of the words spoken by the Native American Chief, "We do not inherit the earth from our ancestors: rather, we borrow it from our children."

I welcome you and look forward to what we can achieve together.

Insert I

THE BUSH ADMINISTRATION IS SERIOUS IN ITS PURSUIT OF SCIENTIFIC AND ECONOMIC RESEARCH THAT WILL HELP US KNOW THE EXTENT AND CONSEQUENCES OF THE PROBLEMS WE FACE. THE FACT IS, WE ARE DEDICATED TO TAKING ACTION ON THE ISSUES YOU ARE DISCUSSING AT THIS CONFERENCE, BUT IT MUST BE A RESPONSIBLE APPROACH, BASED ON INFORMED DELIBERATION.

THE UNITED STATES IS MAKING A MAJOR FINANCIAL COMMITMENT TOWARD FURTHERING THIS RESEARCH. FOR EXAMPLE, WE HAVE INCREASED OUR FUNDING FOR THE U. S. GLOBAL CHANGE RESEARCH PROGRAM TO OVER $1 BILLION.

WE BELIEVE MORE RESEARCH IS NECESSARY, ~~BUT~~ AND WE ARE FULLY PREPARED TO TAKE ACTION WHEN ~~IT IS CLEAR~~ SUCH ACTION ~~WILL BE USEFUL~~ IS PRUDENT IN LIGHT OF THAT RESEARCH.