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Folder Title:
Global Climate Change - IPCC [1]

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WHITE HOUSE CORRESPONDENCE TRACKING WORKSHEET

☐ O - OUTGOING
☐ H - INTERNAL
☐ I - INCOMING
 Date Correspondence Received (YY/MM/DD) 1/1

Name of Correspondent: Richard Stewart

☐ MI Mail Report User Codes: (A) _____ (B) _____ (C) _____

Subject: Letter to Robert Zoellick regarding future work on legal and regulatory policy issues presented by potential international agreements respecting a global climate. Strategy group to discuss approach to international discussions.

ROUTE TO:		ACTION	DISPOSITION			
Office/Agency	(Staff Name)	Action Code	Tracking Date YY/MM/DD	Type of Response	Code	Completion Date YY/MM/DD
	Cup 2	ORIGINATOR	90 10 05			1 1
	10/17	Referral Note:	I 90 10 09		3	90 10 17
	10/02	Referral Note:	I 90 04 09			1 1
	10/01	Referral Note:	I 90 10 09			1 1
	10/14	Referral Note:	I 90 04 09			1 1
		Referral Note:				

ACTION CODES:

A - Appropriate Action
 C - Comment/Recommendation
 D - Draft Response
 F - Furnish Fact Sheet
 to be used as Enclosure

I - Info Copy Only/No Action Necessary
 R - Direct Reply w/Copy
 S - For Signature
 X - Interim Reply

DISPOSITION CODES:

A - Answered
 B - Non-Special Referral
 C - Completed
 S - Suspended

FOR OUTGOING CORRESPONDENCE:

Type of Response = Initials of Signer
 Code = "A"
 Completion Date = Date of Outgoing

Comments: No action necessary. JRL 4/10/90

Land and Natural Resources Division

Office of the Assistant Attorney General

Washington, D.C. 20530

FAX NUMBER (202 786-4215 OR FTS 786-4215)

CONFIRMATION NUMBER (202 OR FTS) 633-2701

FROM: Mr. Richard StewartNUMBER OF PAGES TO BE TRANSMITTED: 2 (including cover)TO: Bryden GrayFAX NUMBER: 456-2883MESSAGE:



U.S. Department of Justice
Land and Natural Resources Division

131343CW

Office of the Assistant Attorney General

Washington, D.C. 20530

April 5, 1990

Robert Zoellick
Counsellor to the Secretary
Department of State
2201 C Street, N.W.
Room 7250
Washington, D.C. 20520

Dear Bob:

We had a very cordial and useful meeting at the State Department yesterday with Dick Smith, Chris Dawson, Andy Sens, and Alan Kreczko and Sue Biniaz from the Legal Advisor's Office. It set a good precedent for better communication and closer cooperation. I am confident that we can work together effectively on the legal and regulatory policy issues presented by potential international agreements respecting global climate. As you may know, Steve Danzansky is convening a Strategy Group to discuss the administration's approach to international discussions and negotiations. I appreciate your personal interest in the comprehensive, market-based approaches that the administration is seeking to develop.

Best wishes,

Richard B. Stewart
Assistant Attorney General

✓ cc: Boyden Gray

GCC - IPCC

DRAFT
NOT FOR CIRCULATION
4/11/90

Concepts for U.S. Legal Policy on Climate: a Convention
Employing the "Comprehensive" Approach

This provides a brief list of concepts to include in a convention in order to foster the "comprehensive" approach, should any such convention be pursued. It is not a complete list of elements for a convention, which would need to include many other elements.

1. The Preamble to the Convention would explain its scientific and policy basis by including the following elements:

Recognition that several gases are of concern (not just CO2)

Recognition that these gases mix in the atmosphere and have joint effects on climate, and that it is their joint aggregate impact on climate that is of interest

Recognition that greenhouse gases are both added to and removed from the atmosphere by anthropogenic activities, that it is the net emissions of these gases that is of interest, and that expansion of sinks can be an effective and advantageous means of limiting net emissions of these gases

Recognition that any emissions limitation obligations should afford nations flexibility in complying: different nations have different social and economic needs and rely to different degrees on activities related to different gases, sources and sinks

Recognition that each gas has different impacts on climate change (different radiative forcing), as well as on other important environmental endpoints (e.g. ozone depletion, plant productivity), all of which need to be accounted for in deciding policy

Recognition of the importance of developing response measures that are effective, economically efficient, and equitable

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2. The parties would agree in the Convention to:

- (a) - generate a "net emissions inventory": an accounting of each nation's sources and sinks of each greenhouse gas. (The list of greenhouse gases would be attached as an annex, with provisions for updating as needed.) Nations would then be encouraged to look to sink expansion (or protection) as well as source restriction in any strategies to limit net emissions.
- (b) - develop monitoring capabilities for all greenhouse gases, to keep the inventory up to date, and to measure the effects of policy responses on actual net emissions. Currently, such monitoring is much better developed for CO₂ than for other greenhouse gases, leading analysts to ignore such important but poorly documented gases as methane and nitrous oxide. (In addition, any sound international agreement will require verification of nations' claimed emissions limitations.)
- (c) - develop a comparative index of the impacts of each gas on the environment. This index would begin by calculating the potential of each gas to contribute to atmospheric warming ("radiative forcing"). The index would assign a numerical weight to each gas, so that, per molecule, reductions in the more radiatively powerful gases (e.g. CFCs, nitrous oxide) would be valued more highly than reductions in the less powerful gases (e.g. CO₂). The index should also include other relevant environmental impacts, such as deleterious ozone depletion due to CFCs and beneficial improved plant productivity due to CO₂; though inclusion of such factors may complicate the analysis somewhat, it would much improve the policy decisions based on the index by encouraging environmentally optimal strategies not focussed solely on climate. The index would be developed by an international technical committee, perhaps integrating the ongoing work of IPCC Working Group I on this point.
- (d) - express any emissions targets (to be set under a subsequent protocol) in terms of weighted overall greenhouse gas net emissions, not in terms of piecemeal targets for a particular gas (e.g. CO₂) or a particular source (e.g. coal combustion) or sink. Under this approach, nations would have the flexibility to devise policies addressing the various sources and sinks of each of the several gases as they choose, so long as the aggregate index-weighted net emissions did not exceed the nation's overall target. This approach would afford flexibility to nations with diverse economic and social circumstances, would encourage expansion of sinks such as forests, and would focus attention on the

- 3 -

least environmentally benign gases first (CO₂ being perhaps the most environmentally benign).¹

The setting of targets themselves could be undertaken, if at all, in a protocol to this Convention, not in the Convention itself. The Convention would simply ensure that any targets that are ever set will employ the comprehensive approach described here, encompassing all greenhouse gases, their sources and sinks.

Nothing in these provisions would authorize nations to avoid, defer or depart from their obligations under the Montreal Protocol on Substances that Deplete the Ozone Layer. The "comprehensive" approach could support the goals of the Montreal Protocol by adding incentives to limit emissions of gases regulated under the Protocol that are also greenhouse gases, such as incentives to reduce their emissions more rapidly or to lower levels than the Montreal Protocol requires.

Each of these tasks would include provisions for continuing research with opportunities to revise and update the legal instrument as research progresses.

3. The parties would further agree to:

- report their net emissions inventories at set intervals (e.g. annually) to the Secretariat of the Convention, making the data available to any interested party
- permit various means for verifying the inventories, perhaps including remote sensing and on-site inspections
- undertake continuing assessment of response measures, focussing on the costs and benefits of each proposal and on the use of least-cost incentive systems that encourage flexible, diverse, innovative responses
- in particular, allow voluntary joint cooperative compliance by nations who choose to reallocate their individual activities among each other so long as their aggregate net emissions do not exceed the sum of their

¹As an alternative to mandating the comprehensive approach in the Convention, the parties could agree simply to consider this approach. The agreements to develop the net emissions inventory of all greenhouse gases, the monitoring capabilities, and the index would lay the basis for agreement on the comprehensive approach at subsequent negotiations.

- 4 -

individual obligations, and so long as the parties notify the Secretariat of their arrangements. This is the essence of emissions trading. Such joint reallocations could initially occur within regional economic integration organizations (e.g. the EC), but other nations, including developing nations, should be encouraged to participate. The parties would further agree to explore the utility of more formal emissions trading, based on a system of transferable emissions allowances and institutions to facilitate exchange, provided adequate monitoring is available

- ensure needed resource transfers to developing nations, including financing, technology, technology assistance, consulting, and so forth, to enable these nations to develop economically without having to unduly increase greenhouse gases or to destroy sinks. This resource transfer could be accomplished by emissions trading, in which developed nations facing high costs of emissions reductions would transfer funds and technology to developing nations in return for a share of excess allowances generated by lower cost emissions reductions. This transfer mechanism could perhaps be more effective, and benefit both developing and developed nations more, than traditional transfer donation systems.

4. The definitions section would define relevant items, including:

- Climate change
- Greenhouse gases (listed in an Annex)
- Sources
- Sinks
- Anthropogenic
- Net emissions
- Index of comparative environmental impacts of gases
(expanding upon "CO2 equivalence")

6CC - IPCC

MINISTERE
DES
AFFAIRES ETRANGERES

REPUBLIQUE FRANCAISE

Paris, le 02 Avril 1990

Le Chargé de Mission
auprès du Ministre d'Etat,
Ministre des Affaires Etrangères

Cher Monsieur,

La France organise les 26 et 27 Avril un séminaire informel de réflexion, dans le contexte des travaux du Groupe Intergouvernemental sur l'Evolution du Climat/Intergovernmental Panel on Climate Change. L'objectif de ce séminaire est de discuter de l'application de mesures économiques et financières liées au changement de climat.

Le séminaire a été préparé en consultation avec les coordonateurs du groupe III du GIEC (stratégies de réponse) sur les mesures économiques et sur les mesures financières ainsi qu'avec l'aide de l'OCDE. Il se tiendra au Centre International de Conférence, 34 avenue Kléber, 75016 Paris. L'enregistrement commencera à 8 h 30 le 26 Avril.

La participation au séminaire, est limitée à 2 personnes par pays invité (la liste de ces pays est jointe en annexe 1). Elle reflète la participation des pays aux discussions en cours au sein du GIEC/IPCC, notamment lors des réunions du groupe III à Genève en octobre 89 et lors de la Session plénière à Washington en février 90, tout en s'efforçant de respecter un équilibre dans la représentation géographique. Les débats auront lieu en français et en anglais et une interprétation simultanée sera fournie.

Je vous serai reconnaissant de bien vouloir confirmer votre participation à Melle Delphine Borione, Ministère des Affaires Etrangères, 37 quai d'Orsay, 75007 PARIS, Tél : 47.53.51.38, FAX : 47.53.44.76 dès que possible.

Afin de faciliter la discussion, chaque pays est encouragé à préparer une note sur les sujets de l'ordre du jour, ainsi qu'il est précisé dans l'annexe 2.

En espérant vous voir à cette occasion, je vous prie de croire à l'expression de ma haute considération./.

J. RIPERT

IPCC SEMINAR

FINANCIAL AND ECONOMIC MEASURES AS A RESPONSE TO CLIMATE CHANGE

HOSTED BY FRANCE

PARIS, 26-27 April, 1990

PROGRAMME

Within the context of the Intergovernmental Panel on Climate Change (IPCC) a two day seminar is being convened in Paris to discuss the application of economic and financial measures by countries in meeting national environmental goals and international commitments. The objective of the seminar is to collate and discuss countries' experiences and recent analyses on the use of these measures to achieve environmental objectives most efficiently. The focus of the discussion will be on climate change and particular attention will be given to the way economic and financial measures fit together in the work of the RSWG/IPCC. The seminar will be used as a basis for the preparation of a paper identifying any additional work on these issues. The intention would be to present such a paper to the RSWG at its meeting in Geneva June 5-8, 1990. While the current RSWG draft papers on economic and financial measures will be used as background papers for this seminar, it is not intended, or in fact possible, to amend these papers prior to the June meeting of the RSWG.

Attendance in the seminar will be limited to a maximum of two participants per invited country (a limited number of experts from international organisations and interest groups will also be invited). Participants are encouraged to prepare a short, three to five page paper on the issues of financial and economic measures (and any sub-topic of particular interest) expressing their opinion and where possible citing experience and analysis in their own country. These short papers will facilitate the discussion in the seminar. Participants are encouraged to send their papers to Mlle. Delphine Borione, Ministère d'Affaires Etrangères, 37 Quai d'Orsay, Paris 75007, France (Telephone No. 47.53.51.38)(Telefax No. 47.53.44.76) as soon as possible, so that they can be copied before the meeting convenes and sent to all those attending. Participants should be aware that because of time limitations there will not be an opportunity to present their papers at the seminar.

IPCC SEMINAR

April 26

08h45

Welcome to Paris

09h00

**Keynote Addresses: Role of Economic Measures
Developing Country Issues
Measures in Non-Market Economies**

MEETING ON ECONOMIC MEASURES'

Chaired by New Zealand and Australia

10h00

1st Session: Emission fees and taxes
(Presentation by France)

Participants should discuss their experience in using fees and taxes with emphasis on their use on greenhouse gases from sources such as energy:

- basis for charges (emissions, fuel characteristic, etc.)
- elasticities (short and long-term)
- size of necessary tax increase, revenues generated and their use (excluding issues identified in the draft IPCC paper on financing)
- revenue collection and enforcement issues
- effectiveness in achieving multiple goals of emissions reduction, enhancement of sinks, adaptation and sustainable resource use
- effects on trade and competition
- macro and micro-economic effects
- political acceptability

11h45

2nd Session: Subsidies
(Presentation: to be advised)

Participants should discuss subsidies from two perspectives:

- the removal of subsidies which distort the market and increase greenhouse gases or reduce sinks
- the use of subsidies to reduce emissions of greenhouse gases, increase sinks or facilitate the adaptation to climate change

1
Each session of the seminar will begin with the presentation of an expert in the subject area. Each presentation will discuss the use of the measure at both the national and international level, using the criteria outlined in the draft IPCC report as a basis for measuring the advantages and disadvantages of each measure as a tool in implementing an agreement to limit or adapt to the greenhouse effect. Each economic measure would be discussed under the basic hypothesis that

...even when economic measure would be discussed under the basic hypothesis that both global and national emission (net of sinks) targets had been set by international agreement.

REC'D DEF 452/2007

Particular items of interest include:

- impact on sensitive sectors (agriculture, energy, trade, etc.)
- effectiveness in achieving the stated goals
- hidden subsidies
- origin of revenues (links to session of taxes)
- role of subsidies for research and development
- effects on trade and competition
- macro and micro-economic effects
- political acceptability

13h00 Lunch - hosted by the French government

14h30 3rd Session: Tradeable rights and bubbles
(Presentation by the United States)

Participants should discuss the degree to which these instruments have been used or reviewed in their countries or in their analysis. Particular attention should be paid to:

- definition of participants in trades
- allocation of rights, including temporal characteristics
- the regulatory mechanisms needed to implement and enforce these instruments including the mechanism for allocation of emission rights and control
- issues related to "banking", hoarding, and leasing of rights
- effectiveness in meeting multiple goals of emission reductions, sink enhancement, adaptation and sustainable resource use
- the advantages and disadvantages of these instruments versus fiscal instruments
- advantages and disadvantages of this mechanism under single pollutant versus multiple or comprehensive pollutant agreements
- effects on trade and competition
- political acceptability ("right to pollute")

17h00 4th Session: Regulations
(Presentation: to be advised)

Participants should discuss the use of regulations in planned and market economies to reduce greenhouse gas emissions, enhance sinks and facilitate adaptation.

- effects on technology or process innovation
- macro and micro-economic effects
- role of regulations in economic measures
- political acceptability

MEETING ON FINANCIAL MEASURES

Chaired by France, The Netherlands and Egypt

April 27

09h00 **Introduction**

09h15 **1st Session: Aims and Methods of International Aid**

- Types of aid programs (reforestation, energy efficiency, training, CFC substitution, adaptation, education, research and development)
- Principles for attribution of aid -- efficiency, need
- Evaluation of financial needs (case studies by country or by sector)
- Institutional mechanisms
 - . improving/strengthening of existing organisms
 - . other mechanisms/organisms
- Additionality of climate related aid
- Issues related to technology transfer and intellectual property rights

11h00 **2nd Session: Generation of the funds**

- Size of funding needed to achieve objectives
- Use of taxes in aid funding
- Contributions of the States (voluntary/obligatory)
- Possible criteria for determining the basis for the contributions
 - . GNP
 - . emissions of CO₂
 - . others
- Contributions attached to commitments to reduce or control emissions (or enhance sinks) and penalties for non-compliance
- Political acceptability

13h00 **Lunch**

15h00 **3rd Session: Links between Financial and Economic Measures**

16h00 **Summary and Conclusions**

6CC-IPCC



#00-372

MAIL MESSAGE

ATTN: Nancy Stoner

PRINTED: Mar 9, 1990 12:19 PM EST

ADDR: (202) 786-5810

SEQ # : MAR89.0001

ATTEMPT: 1

Posted: Fri, Mar 9, 1990 12:17 PM EST

Msg: KGJA-4192-1251

From: T.MAGINNIS/OCEAN.ASSOCIATES/OCEAN/SCIENCE/OMNET

To: ces.sg, gccwg2, gccwgii

Subj: UK meeting agenda, for response before cob 3/9/90

NUMBER OF PAGES (including this page):5

I have printed below an agenda for a June workshop to be hosted by the UK. It is being billed as a follow-on to the Noordwijk meeting. We have been asked by the State Department to comment on it as soon as possible. This seems to suggest that the thrust of the workshop would be extent to which governments can officially respond to the potential for a global warming threat.

The question which comes to my mind is how this meeting will fit in the process toward a Framework Convention which includes the April White House meeting and the US offer to host the Framework Convention conference next winter. Note that there is a statement planned for the end of the meeting.

Greenhouse gas targets - IPCC workshop, hosted by UK

Preparatory Meetings

- To feed into main workshop.

Technical Issues for consideration

Report to Main Workshop on

1. Principles of stabilization (1 day)

- | | |
|--|--|
| a) Relationship between emissions concentrations | i) Case for expression of global targets

as:- |
| b) Differential behaviour of different gases | a) concentrations
b) emissions |
| c) Sinks - what counts; forests, home/abroad; export of energy efficient equipment | ii) Role of sinks in carbon offsets |
| d) Tractability of different greenhouse gases and sinks to manipulation | iii) Key timing considerations |
| e) Critical timing issues | iv) Main emissions and sinks to concentrate on |

2. Principles of all greenhouse gas emission inventories (1/2 - 1 day)

- | | |
|----------------------|---|
| a) Fossil/non fossil | i) What is significant enough to count; and for whom? |
| b) Bunkers | ii) Where do |

crucial
uncertainties
or disagree-
ments exist
which need
resolving

c) Aviation fuel

iii) Accounting for
imports/exports

d) Electricity & other imports/
exports

iv) Gaps in
database.

e) Availability of database

f) Controllable sinks

Technical issues for consideration

Report to main
workshop on-

3. Verification and links with
inventories (1/2 - 1 day)

a) Techniques for measuring
and sinks

i) List of
verifiable
techniques for

b) Verification

estimating
greenhouse gas
emissions and
their sinks.

4. Any others?

WORKSHOP

OBJECTIVES

- 1) To discuss technicalities associated with target-setting and where possible achieve consensus
- 2) To clarify issue of target-setting
- 3) To generate list of options for target-setting globally and by individual countries
- 4) To assess the feasibility of different options
- 5) Identify gaps where further work needed.

Report to the IPCC

Agenda

SESSION 1 (Plenary)

Introduction, mechanics and objectives.

SESSION 2 (Plenary)

Science/technical input

Rapporteurs from Working Group 1 (Science) - What does science consensus imply for targets? CO₂/Greenhouse gas targets - equivalence.

Reports from preparatory meetings

SESSION 3 (Plenary)

Strategy input

Rapporteurs and experts from Working Group 3 (Response strategies) - EIS and (Forestry). What country studies imply in terms of abatement of greenhouse gases?

- technologies
- costs
- policy options
- trade implications, eg. for gas standards.
Any remaining gaps?
- development of sinks

SESSION 4 (Plenary)

Global target

Different gases

CO₂ implications

Ways of setting targets/offsets - (net greenhouse gas
omissions)

How to decide what level (relating abatement profiles to
concentrations)

Timing? i.e., profile, review of timing sensitivities of net
omissions in light of science.

Session 5

National targets

Plenary sessions

- 1) Problems faced by different economic systems, stages of development and resources.
- 2) Opportunities to facilitate control measures and least cost implementation, eg. regional targets, trading, technology transfer.
- 3) Ways of expressing national/regional targets.
- 4) Policy Instruments available.
- 5) Principles of division of targets.
- 6) Factors to be taken into account in setting/dividing targets.
- 7) Offsets by overseas measures either on developing sinks (forests) or reducing greenhouse gas emissions eg. energy efficiency in Eastern Europe)
- 8) Alternatives to emission targets for all or some classes of countries.

SESSION 6

Feasibility of alternative approaches

Plenary

- 1) Criteria for assessing feasibility of different approaches to target-setting
Parallel Groups?
- 2) Application of criteria to assess feasibility for different groups/countries.

SESSION 7

Drafting sessions (parallel groups)

- 1) Global target
- 2) Target splitting
- 3) Feasibility assessment

SESSION 8 (Plenary)

- 1) Conclusions
- 2) Approval of draft report to RSWG



United States Department of State

*Assistant Secretary of State for Oceans and
International Environmental and Scientific Affairs*

Washington, D.C. 20520

March 9, 1990

TO: AID - Eugene Chiavaroli(647-3028)
CEA - Richard Schmalensee(395 6947)
CEQ - John Cohrssen(395-3928)
DOA - Charles Hess(755-7842)
DOC/NOAA - John Knauss(377-8203)
DOC/NWS - Joe Friday(427-2610)
DOE - John Easton(586-1180)
DOI - John Schrote(343-5048)
DOJ - Richard B. Stewart(786-4215)
DOT - Jeffrey N. Shane(366-7127)
EPA - Terry Davies(252-0275)
NASA - Lennard Fisk(426-0754)
NSF - Felice Levine(357-7745)
OMB - Robert E. Grady(395-5730)
OSTP - Nancy Maynard(395-3719)
USTR - Robert Reinstein(395-3911)
Army Corps - Morgan Rees(697-3366)
Treasury - Michael Springer(566-8066)

FROM: DOS/OES - Frederick M. Bernthal

SUBJECT: Preparations for Negotiations on a Framework
Convention on Climate Change

The framework convention issue is now being addressed in several fora. These include the IPCC, UNEP and WMO (whose directors have a mandate to "begin preparations for negotiations"), and there are proposals to address the issue at the U.N. General Assembly (UNGA) which will reconvene in mid-September, and the Second World Climate Conference (SWCC), which will take place October 29 - November 7, 1990.

President Bush has offered to host the opening round of formal negotiations in the United States this fall. We believe that such negotiations should be conducted by senior policy-level representatives with access to central policy circles in their respective capitals. These representatives could, of course, delegate to technical experts defined work within the negotiating process, but such organizational decisions are a policy-level prerogative.

-2-

We understand that UNEP Director Tolba is proposing that an ad hoc, informal UNEP/WMO technical/legal working group meet in early October to begin preparations for negotiations. This group would report on its work to the UNGA and the SWCC. The focus for preparations would remain with the UNEP/WMO group, but both the UNGA and the SWCC would be expected to provide this group with additional guidance on the negotiating process and goals towards which the negotiators should work. The technical/legal group would essentially negotiate the convention, which would then be endorsed by senior policy officials with plenipotentiary powers at the appropriate time. Dr. Tolba's proposed procedure is very similar to the process used to negotiate the Montreal Protocol and the Basel Convention.

The U.S. needs to engage Dr. Tolba on this issue and reach an early agreement on the questions of timing and organization of the framework convention negotiations. These issues have already been discussed informally within the Administration and Dr. Tolba has been approached on the point.

Therefore, with interagency concurrence, I would propose that the U.S. now press for Dr. Tolba's agreement that formal negotiations on the framework convention be initiated in the United States at a senior policy level in early October, after the IPCC's First Assessment Report is adopted by the IPCC Fourth Plenary in late August. Preparations for the opening round of negotiations could be undertaken by a UNEP/WMO technical group in mid-summer, after the adoption of the RSWG report. We expect that report to contain the IPCC's carefully worked out ideas on possible elements for a framework convention and the issues which will likely arise during the negotiations.

I shall assume that you concur in this general approach unless comments to the contrary are received by COB, Monday, March 12. If you should have any comments, please fax them to me at: 647-5947.

APPENDIX

In the last two weeks:

- State prepared a proposed redraft of the IPCC/RSWG "Legal Measures" paper. (It was the October 1989 version of this paper that prompted our concerns about separate command-and-control protocols for each gas.) State's proposed redraft continues to tilt the document toward separate protocols, mentions the Justice proposals in places but omits or disparages them in other key places, and suggests other views at odds with U.S. interests. Justice had repeatedly asked for an opportunity to work on the draft, but was only belatedly provided an information copy and told the draft had already been circulated informally among other nations.
- In the interagency process drafting the U.S. delegation guidelines for the May 1990 "Action for a Common Future" Conference on environment and development in Bergen (rumored to be "another Noordwijk"), Justice worked to insert advocacy of market-based and performance-based environmental policy tools, in order to counter the technology design standards the conference appeared likely to endorse. State invited Justice to be a part of the U.S. Delegation to negotiations in Geneva on the Bergen conference documents, but the day before departure State withdrew the invitation.
- State received a draft agenda for a U.K.-hosted IPCC workshop on climate policy in June, and distributed the draft agenda to three agencies, not including Justice. The agenda covered a wide range of legal policy issues, including items directly relevant to the "comprehensive" and "emissions trading" approaches.
- Last week State issued a letter saying that negotiations on a framework convention on climate change should take place in "mid-summer," with the convention to be signed in October.
- Meanwhile, State has been helpful in distributing copies of the discussion papers on the comprehensive and emissions trading approaches to U.S. posts abroad, and in other occasional activities related to these approaches.

If the U.S. is to develop a strategy that favors U.S. interests, clearer ground rules are needed under which State and other agencies work together under the direction of the DPC Working Group, to promote flexible, cost-effective response strategies to global environmental issues.

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U.S. Department of Justice
Land and Natural Resources Division

Office of the Assistant Attorney General

Washington, D.C. 20530

December 18, 1989

MEMORANDUM

TO: Hon. D. Allan Bromley
Assistant to the President
for Science and Technology
Chairman, Domestic Policy Council Working Group
on Global Change

Members of the Domestic Policy Council
Working Group on Global Change

FROM: Richard B. Stewart *RS*
Assistant Attorney General

SUBJECT: International Approaches to Global Climate Change

In an effort to develop a new approach to possible international agreement on global climate change, representatives of the Environmental Protection Agency, the State Department, and the Justice Department have met with each other and with the Counsel to the President. This memorandum transmits to you the materials produced by those meetings, and identifies certain issues to which the DPC Working Group may need to give special attention.

Timetable

In the first week of February 1990, the United States will host a meeting of the Response Strategies Working Group ("RSWG") of the Intergovernmental Panel on Climate Change ("IPCC"), followed by a plenary meeting of the IPCC. At its February meeting, the RSWG will consider additional submissions to its October, 1989 Report. Such submissions must be made by a deadline of January 1, 1990.

Follow-up actions in the coming months include further deliberation by the RSWG and the full IPCC over the spring and summer, the President's spring conference on the science and economics aspects of global environmental change, the IPCC conference in the autumn, possible related activities by the United Nations Environment Programme ("UNEP"), and the international conference on a "framework convention" on climate change to be hosted in Washington, D.C. in the fall of 1990. These meetings and others are listed in the last attachment to the memorandum dated December 14, 1989, described below.

Materials Attached

Attached please find the following materials:

- Memorandum from Richard B. Stewart to C. Boyden Gray, dated December 14, 1989, describing and analyzing the proposed new approaches for international agreement. (Tab 1)

Related to this memorandum are the following attachments:

- Comments to be proposed for inclusion in the RSWG Report. The deadline for adding such comments is January 1, 1990. (Tab 2)
- "Concept Paper" briefly summarizing the proposed approaches for international agreement, to be submitted for inclusion in the RSWG Report, also by January 1, 1990. (Tab 3)
- List of significant meetings and conferences in the coming months. (Tab 4)
- Memorandum from Richard B. Stewart to C. Boyden Gray, dated December 18, 1989, outlining the next steps that should be taken to develop the proposed approaches. (Tab 5)

Issues for DPC Working Group Consideration

We respectfully suggest that the DPC Working Group on Global Change consider the proposed approaches contained in the above documents, and the discussion of the strategic questions, advantages and drawbacks related to our approaches contained in those documents. It should be noted that the impacts on the

United States of international adoption of the proposed approaches have not yet been analyzed in detail, and no quantitative predictions of such effects are yet available. Our recommendations are therefore tempered by the need for further research.

In particular, we recommend special attention to the following concerns:

1. Should the United States favor the traditional approach to environmental regulation when addressing potential global climate change, involving a framework convention followed by successive protocols each directing nations to limit their emissions of a separate specific pollutant? That approach has been employed, with some variations, by the Vienna Convention and the Montreal Protocol on Substances Depleting the Ozone Layer, and was proposed by other nations for dealing with global climate change at the Noordwijk Ministerial Conference on Atmospheric Pollution and Climate Change.

Or should the United States actively promote a "comprehensive" approach to collective treatment of all greenhouse gases, their sources and sinks, in which each nation must meet a national performance-based target, but is left to choose its mix of domestic policies to meet that target? This approach is described in the attached materials, and it is the one we recommend.

2. Assuming the United States Government adopts the approach we recommend, should the proposed approach outlined be presented to the RSWG and/or the IPCC as the official United States position, or should it be put forward more tentatively, as an issue for consideration by the RSWG and/or the IPCC?

3. Should the "international trading" approach, as described in the above materials, be proposed as an integral part of the United States submission, firmly linked to the "comprehensive" approach, or should it be treated as an important and useful idea which may nevertheless be deferred for further consideration? This question is discussed more fully in the memorandum dated December 14, 1989, listed above, particularly at pp. 3-4.



U.S. Department of Justice
Land and Natural Resources Division

Office of the Assistant Attorney General

Washington, D.C. 20530

December 14, 1989

MEMORANDUM

TO: C. Boyden Gray, Esq.
Counsel to the President

FROM: Richard B. Stewart *RS*
Assistant Attorney General

SUBJECT: International Approaches to Global Climate Change

As requested at the December 6, 1989 meeting in your office, an informal group of representatives of EPA, Justice and State have developed materials to promote discussion and adoption of a comprehensive, performance-based approach in international agreements dealing with global climate change. This memorandum is submitted to transmit these materials to you, and to highlight some of the issues raised by such an approach.

SUMMARY

Under a comprehensive, performance-based approach, all greenhouses gases, sources and sinks are addressed together. Each international legal instrument produced -- whether convention or protocol -- deals, to the maximum extent possible, with the entire array of gases, their sources and sinks.¹ This approach employs the concept of a "global warming potential index" to compare gases, their sources and sinks along a standardized spectrum, and the concept of "net emissions" to adopt performance targets that would not be limited to any one gas or source or sink, but would permit attainment of the target through policies aimed at all scientifically understood

¹As explained below, limitations in data and scientific understanding may preclude use of a truly comprehensive approach, incorporating all sources and sinks, at the outset.

greenhouse causal factors. Such net emissions performance targets would be set, at least initially, for each nation, and would leave to each nation the choice of internal policies desired to attain the target. Thus, using the "global warming potential index," each nation could devise a set of policies that would reduce "net emissions," through restriction of sources or expansion of sinks or both.

Such an approach would provide maximum flexibility for developing diverse, innovative, cost-effective measures for dealing with global warming. It would encourage, but not require, internal use by participating nations of emissions reduction or contract credits and trading programs, on the model of the Administration's Clean Air Act proposal for acid rain.

In addition, international trades² (on a bilateral, regional or multilateral basis) could be authorized as a method for attaining national net emissions targets in order to achieve further environmental and economic benefits from the use of the trading principle.

This approach is reflected in the following attachments:

- Comments to be submitted for addition to the "Legal Measures" section of the most recent Report of the Intergovernmental Panel on Climate Change ("IPCC") Response Strategies Working Group ("RSWG"), due by January 1, 1990. (Tab A)
- A concept paper to be submitted for attachment as an Appendix to the "Legal Measures" section of the RSWG Report, due by January 1, 1990. (Tab B)
- A revised Draft Framework Convention embodying these approaches. This document is an internal State Department draft, not cleared through interagency review and not for distribution. (Tab C)
- An itinerary of significant upcoming meetings and deadlines. (Tab D)

²The term "international emissions trading" is used throughout this memorandum in its general sense, to refer to trades across national borders without regard to whether the trade is conducted by governmental or private actors.

These materials contemplate the following actions in the international community:

- Proposal by the United States that the comprehensive, performance-based approach and a system of international emissions trading be analyzed and discussed by the RSWG and by the full IPCC.
- Inclusion of obligations in a "framework convention" on climate change requiring the parties to develop the comprehensive approach and the trading approach .
- Implementation, through a protocol to the framework convention, of the comprehensive approach for all scientifically understood greenhouse gases, their sources and sinks.
- Further authorization, either in the initial protocol or in subsequent documents, of international emissions trading.
- Protocol amendments to include additional greenhouse gases, their sources and sinks (or to exclude previously included items) as scientific understanding advances.

There is an important question whether international agreement on responses to global climate change should take the form of one or more than one legal instrument. We recommend flexibility on this question, permitting the use of more than one instrument, so long as each instrument incorporates the comprehensive, performance-based approach outlined here. The use of more than one legal instrument -- a framework convention, followed by one or more protocols -- is not itself inconsistent with our "comprehensive" and "trading" approaches. The pace of scientific research may require some time between the signing of a convention and the adoption of substantive protocols.³ As discussed below, many nations may view our proposals -- particularly the proposal for a system of international trading -- with suspicion, and it may be to our advantage to propose a trading system in a later document after the comprehensive

³The United States could propose that the international community continue to work on developing the scientific basis for the comprehensive, performance-based approach while the convention is being negotiated, with the possibility of signing the first protocol at the time the framework convention is signed, or as soon as possible thereafter.

approach has been adopted. Further, there is value in gaining signatories to the framework convention even if those nations do not all sign the subsequent protocols, because the framework convention includes participation in research and monitoring activities that will prove useful to those seeking the data base from which to make policy in the protocols and in national legislation. How far to attempt to tilt the framework convention toward our preferred approaches remains a difficult tactical question.

DISCUSSION

A. "Comprehensive" Approach.

A comprehensive performance-based approach stands in contrast to a piecemeal pollutant-by-pollutant approach, such as that proposed at the November 1989 conference in Noordwijk, Netherlands, which focused on adopting targets for one greenhouse gas, carbon dioxide (CO₂), alone.⁴ The comprehensive approach would set a target for "net emissions" of greenhouse gases, for achievement by each nation or by multinational groups such as the European Community. This target could, for example, consist of a phased-in cap, possibly followed by subsequent reductions. The contributions of various sources and sinks to the achievement of this target would be measured by a "global warming potential index."⁵

⁴The Noordwijk conference urged pollutant-by-pollutant control rules, starting with CO₂. It did suggest possible development of a method for comparing the effects of other gases to the effects of CO₂, similar to the "global warming potential index" recommended in this memorandum, but did not attempt to employ that concept in a collective approach to all greenhouse gases.

⁵The "global warming potential index" is a system for computing the contribution to total climate change of any alteration in the emissions of any particular greenhouse gas. It assigns a value to each greenhouse gas describing the contribution of each additional molecule of that gas to the total warming of the atmosphere. The value depends on variables such as the molecular composition of the gas, the lifetime of such molecules in the atmosphere, and the existing atmospheric concentration of the gas and related gases at the time the additional molecule reaches the atmosphere. All the greenhouse gases can then be characterized and compared by their "global warming potential index" values. This method is discussed further in the EPA's attached Concept Paper.

The advantages of this approach are several. First, it allows each nation to use that combination of source and sink controls and other measures that is best adapted to its economic and other circumstances, achieving greenhouse environmental protection at significantly lower cost than a pollutant-by-pollutant strategy. This approach maximizes the opportunity for and encourages the adoption of diverse, flexible, innovative, and cost-effective solutions to global warming.⁶ The economic and social costs of dealing with global warming are likely to be great. It is thus particularly important in this case to use institutional strategies that will maximize the incentives and opportunities for development of new technologies and other innovative responses that will reduce these costs. Performance-based standards, a comprehensive approach, and net emissions trading will each contribute to achieving this goal.

Second, this approach reserves to each nation freedom to employ whatever institutional mechanisms it wishes to use to achieve its target objective. This flexibility takes account of the widely varying legal and cultural systems present in different nations, and avoids the obstacles to international agreement among sovereign states that would be raised by dictating to each nation how it must institutionally manage its climate-related policies and industries. A free market economy is not required to employ strict command and control regulations. By the same token, a centrally planned economy is not required to employ market measures.

⁶For example, an approach that mandated specific percentage reductions in each gas -- such as a 20% reduction in CO₂ and a 30% reduction in methane -- would be more costly than an approach that required a reduction in each nation's contribution to total warming (as measured by the "global warming potential index") and permitted each nation to adopt its least-cost mix of choices achieving the target overall. Some nations might be able to reduce CO₂ emissions much more than 20% through substitution of non-fossil fuels, but be unable to reduce methane output (e.g., a nation importing oil and dependent on rice crops, but endowed with untapped solar power opportunities). Those nations would meet their net targets by reducing CO₂ more rapidly than methane; reducing each the same amount would prove much more costly (perhaps in terms of higher taxes, or reduced rice production) and would leave available CO₂ reductions unexploited. Other nations might find themselves in the opposite situation, able to reduce methane but not CO₂. A similar analysis applies to approaches mandating specific changes in sources alone or sinks alone, rather than combining them in a "net emissions" requirement that leaves the domestic policy mix to each nation.

Third, dealing with all greenhouse gases, sources and sinks at once will achieve substantially better environmental protection. Past experience indicates that attempts to control one cause of an environmental problem while leaving others unregulated often results in shifting residuals or other forms of degradation to the unregulated mode. For example, attempts to reduce water pollution have induced industry to convert liquid pollutants into sludge, creating toxic waste disposal problems.⁷ Similarly, attempts to regulate one greenhouse gas at a time might induce shifts to practices that create other greenhouse gases, possibly contributing more to climate change per unit of economic output than the ones they replace. A comprehensive approach is necessary to ensure proper protection of the environment.

Fourth, a comprehensive approach is more equitable, and greatly reduces the potential for nations to manipulate the design of international regulatory measures in order to achieve competitive or other economic advantage. An approach that set targets first for certain sources or sinks and progressed to others later would unfairly burden those nations whose economies are comparatively more burdened by the initial measure.⁸ Moreover, a pollutant-by-pollutant command and control approach makes it more difficult to arrive at international consensus, because each nation will attempt to "game" the standard-setting agenda in its favor. Nations' efforts to "game" the design of international regulatory controls are also likely to distort trade and reduce global welfare as well as impede environmental improvement.

There are, however, possible drawbacks to a comprehensive approach that should be reviewed. First, there may be difficulties in arriving at "global warming potential index"

⁷In the United States we have traditionally followed a medium-by-medium and pollutant-by-pollutant approach, recognizing many of its problems, but the EPA is now attempting to devise a more integrated strategy to address what have come to be "cross-media" defects in our system of environmental control. Although a "comprehensive" approach to greenhouse gases is focused on the single medium of atmospheric temperature change, it is a vast improvement over pollutant-by-pollutant control.

⁸For example, an approach that first mandated 20% reductions in CO₂ emissions would pose much greater burdens for those heavily committed to using fossil fuels, and for those whose economies depend on exports of fossil fuels; alternatively, an approach that first mandated 20% reductions in methane emissions would pose much greater burdens for those heavily dependent on rice crops and ruminant animal husbandry.

values. These difficulties include the scientific problem of determining consensus values,⁹ the practical problem of assigning values sensitive enough to yield efficient environmental policy,¹⁰ and the political implications of the fact that assigning different values to different gases will effectively alter the costs to different nations of achieving their performance targets. The committee conducting this work could be engaged in a highly politicized enterprise. It should therefore be staffed with the best scientists, and must produce a legitimate conclusion in the eyes of the world.

Second, the problem of the environmental "second-best" may persist even in our "comprehensive" approach, the adoption of a comprehensive agreement, which would not deal with the non-greenhouse environmental impacts of restricting greenhouse gases.¹¹ The IPCC or other appropriate body could be directed to monitor these problems and report back to the international community at regular intervals.

Third, the "comprehensive" approach might be branded a stalling tactic, because some nations believe that the best approach is to adopt protocols quickly for substances we can

⁹As mentioned above, the index values depend on a variety of complex and sometimes interrelated variables. As described in the attached EPA Concept Paper, current efforts to define the index have reached different results. There are also likely to be differences of opinion as to the proper list of greenhouse gases. Further work will be necessary before consensus results are produced.

¹⁰The "global warming potential index" measures could be expressed as functions -- instead of constant values -- to incorporate the several variables on which they depend, such as ambient atmospheric concentrations of that gas and related gases, other atmospheric phenomena, expected lifetime of the gas in the atmosphere, and so forth. As sources and sinks are, in turn, assigned performance values for their contributions to total warming, those values must also be adjustable to take account of variables such as diverse combustion techniques, scrubbing methods, and the varying regional characteristics of forests, or else the value set will discourage investment in advances that could reduce net greenhouse gas emissions. The source and sink values must, furthermore, be flexible enough to take account of long-term investments in emissions-affecting policies, such as sink development, which may have inherently long lead times.

¹¹For example, the generation of nuclear waste. An analog is the history of chlorofluorocarbons (CFCs): developed to replace highly toxic chemicals, they ultimately proved to have serious effects on the stratospheric ozone layer.

agree on now, and proceed to thornier issues as we go. Our approach might be seen as proceeding at the pace of the "slowest common denominator." We might respond that our approach will in fact proceed more quickly, because it raises the potential for broad consensus by eliminating the inequitable effects of single-pollutant protocols. In addition, we might answer that our approach will achieve better results (even if it takes slightly longer to achieve than the first single-pollutant protocol would take) because it will prevent cross-pollutant shifts.¹² In order to make our commitment to action credible to the international community, we might consider unilateral domestic initiatives, such as energy conservation, tree-planting programs, and the like to deal with global warming in advance of the adoption of a comprehensive agreement. A later agreement could give "credit" for such efforts through use of appropriate baselines.

Fourth, the comprehensive approach might not actually end up favoring U.S. interests. We might find ourselves party to a treaty restricting all of US industry instead of one allowing us to shift to other unrestricted fuels. We recommend that the relevant federal agencies be requested to prepare an economic analysis showing the likely impacts on the United States and the world¹³ of several scenarios, including no action, adoption of a CO2 protocol alone, adoption of a comprehensive approach as described here, and other relevant possibilities, in order to provide the Administration with effective means for evaluating these options.

¹²We might also attempt to blunt the "stalling" criticism by focusing efforts now on developing scientific consensus on the comprehensive approach, with an eye toward completing the first protocol at the same time as the convention, or soon thereafter. We might further blunt this criticism by considering including in the convention, depending on the status of development of the first protocol, a requirement that within a specified period after the convention enters into force the parties will agree on the scope and timetable for the first protocol. It may, on the other hand, be impractical to ask parties to bind themselves to future agreement; and specifying too early a date might hinder our efforts to gather all greenhouse gases, their sources and sinks into a comprehensive approach.

¹³The analysis might also estimate costs for other major nations and blocs in order to inform our negotiating strategy. This calculation should also include the cost to the United States and others of not regulating other greenhouse gases, i.e., the costs of consequent added global warming. And as discussed above, even under a comprehensive approach, the calculation of the global warming potential index values could have important implications for U.S. performance under the treaty.

Fifth, a multi-pollutant agreement complicates the task of monitoring compliance, because it covers many more gases and sinks which must be watched, lest countries assert reductions without actually achieving them. This concern points to the need to ensure a scientifically credible method of monitoring emissions of various sources, changes in sinks, and their effects on global climate. In this respect, a comprehensive approach reinforces our interest in basing response agreements on sound science and data. The effects of some gases, sources and sinks may not be sufficiently well understood to include them in an initial agreement limiting net emissions. The ideal of total comprehensiveness may thus be limited by gaps in knowledge. As scientific knowledge advances, however, additional gases, sources and sinks could be included in the basic agreement.

B. "International Trading."

The second approach emphasized in our submissions is the development of "international trading" in greenhouse gas emissions. As explained below, the trading concept is not well understood by many nations, who have viewed U.S. proposals for trading with considerable suspicion. It may therefore not be advisable to press for adoption of international trading at the outset, reserving it for a later protocol, after the comprehensive approach has been launched and more nations have used trading domestically. International trading in environmentally related commodities is already a feature of the world economy, with "debt-for-nature" swaps being perhaps the best known example. The Montreal Protocol on Substances Depleting the Ozone Layer contains "industrial rationalization" provisions allowing limited substance trading among the parties. Domestically, we have instituted trading in the new source "bubble" offset program and the lead phasedown program under the Clean Air Act, and the Administration has proposed a more ambitious trading program in the acid deposition reduction title of the Clean Air Act reauthorization. The concept of "trading" has already been placed before the RSWG by the United States, as part of the subgroup discussion of "Economic (Market) Measures."

The proposal discussed here is to expand the use of this approach by promoting a international trading program in net greenhouse gas emissions, for consideration by the "Legal Measures" subgroup of the RSWG.

In sum, one nation might find it less costly to exceed its net emissions target by N units and to purchase a commensurate N unit reduction from another nation -- the latter able to reduce further than its target at less cost than the price the first nation is paying it. The "purchase" might involve debt being forgiven in return for afforestation, or cash

paid for investments in energy efficiency, or for lower-warming potential fuels (such as Europe paying the Soviet Union to pipe in natural gas), or technological trade secrets offered in return for investments in scrubbing technology, or other similar and innovative techniques. There would be no requirement that every nation "take part" in the trading avenues permitted; those who see no economic need to engage in international trades, or who are philosophically opposed, could demur. Such trades could be arranged on a bilateral, regional, or multilateral basis.

The primary advantage of this approach is that it extends to the international arena all of the benefits which a comprehensive, performance-based approach affords domestically. These include maximum incentive and opportunity for diverse, flexible, innovative, least cost solutions to global warming. The economic advantage of trading may serve as an inducement or palliative to nations concerned about the cost of restricting their emissions. As with the Administration's acid rain proposal, the trading system would permit faster reductions in net emissions at lower cost, potentially easing the way to adoption of significant reduction targets.

There are, however, important concerns regarding an international trading system. First, it may be difficult to monitor the trades -- a problem distinct from the difficulty of monitoring compliance with the emissions targets actually set or arrived at through trades. There is a considerable question as to whether an international institution could keep track of who had traded what rights to whom. Possible options include a "World Climate Bank" to keep track of credit accounts, or even to make credit loans itself; or an annual auction of emissions credits. Existing institutions, such as the UNEP or the WMO, might undertake this monitoring function.

Second, international trading may be limited or distorted by various forms of market failures. For example, a large nation or power company might quickly purchase the rights to large quantities of land in a poor nation, with the goal of planting trees on the land to generate net emissions credits; if other bidders are not on the scene, the farmland may be sold at an undervalued price; and even with multiple bidders, there may be other relevant social concerns, such as the provision of food to the residents, that may not be incorporated in the price of the land. Some of these problems might be alleviated by allowing only nations to trade, by requiring nations to approve all trades made by their nationals, or by requiring a period for open bidding after each offer is made and announced. Such measures are, however, likely to reduce the extent of trading.

Third, some nations at the RSWG meetings have attacked trading ideas as evil "licenses to pollute," because nations

could pay others for permits to allow their own emissions to grow. We might respond that a single-pollutant approach is an even larger "license" because it begins by permitting unrestricted emissions of the as-yet-unregulated gases, which might increase even faster as industry shifts to systems producing them. Also, we could dispute the "license to pollute" philosophy. All regulation involves a "license to pollute;" trading is a morally superior form of regulation because it increases human welfare in both environmental and economic terms. The best responses may involve demonstrations that trading is not a "trick": it promises real benefits to all nations, with safeguards against coercive deals or cheating. Past experience indicates that considerable education may be required before some participants are persuaded of the value of a trading system. The conference of climate experts to be held in Washington next spring could provide an opportunity to showcase trading systems and share experience with their operation.

The concerns expressed by other nations over trading imply an important tactical decision for the United States: how closely to link the "comprehensive" approach to the "international trading" approach. If international sentiment is unswervingly opposed to international trading, it may be advisable to propose the two ideas in a way which treats them as conceptually separate (which in fact they are). On the other hand, combining the two approaches in one proposal may help demonstrate their respective attractive features, and might increase the chances of successful adoption of both ideas.

C. Additional Issues.

Of course, there are numerous other issues to be resolved in any international climate agreement, whether or not it is "comprehensive" and permits "trading." These issues are potentially serious and deserve careful consideration.

First, net emissions targets for each country must be arrived at through a process that is perceived as fair and that produces economically efficient and internationally and intergenerationally equitable outcomes. This process raises the questions of how high to set a global net emissions target, how to set national net emissions targets, timetables and baselines, and how to deal with the special concerns of developing nations, for example by permitting them to proceed on a deferred timetable, or giving them targets significantly above present levels.

The issues regarding setting national targets are not fundamentally different under a "comprehensive" as opposed to a piecemeal approach. Indeed, the expanded focus and greater flexibility of the "comprehensive" approach may make it easier to

deal with them. On the other hand, national standards may be complicated by the need to take account of nations' past activities reducing greenhouse gas emissions, such as planting trees, restricting CFC use, and developing nuclear energy generation.

Similarly, promoting the international emissions trading approach could ease adoption of national emissions targets by promising nations the flexibility of attaining their targets through cost-saving trades. On the other hand, such an approach could also complicate the setting of national emission targets by enabling or encouraging some nations to seek added resource transfers through trades by pressing to reduce the targets assigned to other nations.

Second, arrangements for financial assistance and technology transfer to developing economies must be addressed, in order to respond to developing countries' concerns that global warming measures will limit their economic growth, and proper arrangements for financing and technology transfer could alleviate some of those concerns. Financial arrangements and technology transfer are also central to the environmental objective of preventing undue global climate change. For example, financing may be important because some current developing nation debt is repaid through sink-destroying activities such as timber cutting and grazing of forest lands, because investments in new technology or in sustainable agriculture may require initial capital outlays, and because developing nations may lack the resources to undertake the requisite monitoring of their greenhouse gas sources and sinks. Similarly, technology transfer may be climate-related: it may assist developing nations in shifting to non-fossil fuel energy sources, in reducing greenhouse gas emissions from agricultural sources such as rice paddies, and in monitoring greenhouse gas emissions. Conceivably, financial assistance and technology transfers could be linked to an international trading system by giving donor nations credit for a percentage of the reductions in net greenhouse gas emissions achieved as a result, although any such proposal would likely receive a hostile response from many in the international community.

A third issue involves the structure of implementation assurances. Past environmental treaties have employed a variety of options, and possibilities include national reporting; periodic international auditing; routine international monitoring by an international agency; a standing body of representative experts to monitor and report noncompliance; reliance on non-governmental organizations; and national complaints followed by adjudication before an arbitrator, an advisory "conciliation commission," the International Court of Justice, or the U.N. Security Council. A climate treaty might employ one or more of these methods, or create new ones. One suggestion is to require

national or international monitoring of emissions, coupled with publication of the emissions information and the nation's performance target, and review of the result at an annual conference of signatory representatives. The vast array of sources and sinks of greenhouse gases will make monitoring compliance especially difficult, and may necessitate methods of assuring implementation that avoid resort to extended litigation.

A fourth general issue involves the identification of new or previously undiscovered greenhouse gases, new sources of greenhouse gases and sinks, and new routes of greenhouse gas sink destruction. International and national institutions and constant scientific vigilance will be required to prevent natural and technological loopholes from defeating the goals of a global climate agreement.

Fifth, there is the question of relating a climate agreement -- in particular a "comprehensive" approach to greenhouse gases -- to earlier international agreements covering specific gases, sources or sinks. For example, the Montreal Protocol on Substances Depleting the Ozone Layer regulates the production of chlorofluorocarbons (CFCs), which are also powerful greenhouse gases. Other agreements may affect other greenhouse gases, rates of deforestation, and the like. Questions may be raised -- especially by developing nations who have not needed to reduce emissions of substances used primarily in industrialized nations, such as CFCs -- about whether reductions achieved (or foregone) under other agreements may count toward compliance with greenhouse gas emissions targets.

Sixth, the issue of investments in adaptation to climate change has not been considered in our approaches to international agreements. Although the local effects of climate change are likely to vary and therefore to require local adaptation responses, there may be some adaptation techniques applicable to numerous locales or to an industry that spans many nations. In addition, some nations may require financial, technical and informational assistance in predicting climate impacts and developing effective adaptive responses. These kinds of problems and opportunities could be addressed in international contexts, but we do not expect them to play a central part in the international effort to limit climate change by reducing net emissions.¹⁴

¹⁴One possible area of overlap is suggested by the use of adaptation investments as "payment" for emissions credits under an international trading system; but this example is simply a particular instance of the general idea that anything of value, whether climate-related or not, could serve as currency for emissions credits.

Comments on IPCC Response Strategies Working Group
Legal Measures Paper

The U.S. proposal might be reflected in the IPCC Response Strategies Working Group Legal Measures Paper as follows:

1) Add the following ticks to section 1. (Preamble):

- Recognition of interrelationship among all greenhouse gases, their sources and sinks, and the consequent utility of treating them collectively
- Importance of developing response measures that operate in an equitable and economically efficient and effective manner, and that encourage innovation and diversity in the technological and institutional means of addressing global climate change

2) Add the following paragraph to section 3. (General Obligations):

- Development of a protocol, as soon as possible, addressing all adequately scientifically understood greenhouse gases, their sources and sinks, in a comprehensive approach to controlling net emissions of greenhouse gases through national performance targets, leaving to each country the choice of domestic policy responses to achieve its net greenhouse gas emissions target; development of equitable and economically efficient implementation measures, including a system of international emissions trading (see Economic Measures paper, section 5.2); keep under continuing review the set of greenhouse gases, their sources and sinks, and revise the set, according to evolving scientific understanding. (This approach is further elaborated in Appendix __.)

3) The second and third ticks on page 4 refer to "emission limitations/reductions". Either add "net" before "emission" in each of these ticks or repeat both these ticks with the word "net" before "emission".

4) Add the following ticks to section 11. (Annexes and Protocols):

- treat all greenhouse gases, their sources and sinks, comprehensively, in a single protocol
- international emissions trading

U.S. CONCEPT PAPER COMPREHENSIVE GREENHOUSE GAS APPROACH TO A FRAMEWORK CONVENTION ON CLIMATE CHANGE

Proposal:

The RSWG should seriously: 1) consider the merits of combining a framework convention on climate change with one or more protocols that would treat greenhouse gases collectively on the basis of a warming potential index, and 2) evaluate alternative implementation procedures including international tradeable emission reduction credits.

Summary:

Global emissions of greenhouse gases (CO_2 , CH_4 , N_2O , CFCs, CO, and other trace gases) are currently increasing in every country because of man's activities. Addressing the problem requires a comprehensive and flexible approach that will enable countries to find economically efficient measures to stabilize or reduce emissions while achieving economic growth. The U.S. government believes that a framework convention on climate change should establish a process focusing on the collective warming potential of greenhouse gases rather than on individual greenhouse gases. Countries should be free to select between emission reduction or sink enhancement strategies and among gases as long as these are consistent with a negotiated "collective" greenhouse gas target. Trading emission reduction credits between countries could be an option in implementing this approach. Under this approach, the Convention would set forth a general goal of stabilizing or reducing greenhouse gas emissions at levels and dates to be established in a protocol or protocols to the convention to be developed as soon as possible.

Concepts and Definitions:

Greenhouse gases differ in both their ability to trap heat and their atmospheric lifetimes. For example, methane traps heat approximately 30-40 times more effectively than CO_2 , but has a lifetime of 8-12 years, while CO_2 has an effective lifetime of several hundred years. The concept of a Global Warming Potential index has been proposed as a means of accounting for these differences. Recent papers by B. Assarsson and by Lashof and Ahuja propose two similar approaches for defining such an index. For example, the second paper suggests that the Global Warming Potential of methane relative to CO_2 is 3.7. In economic terms this suggests that one could spend up to 3.7 times for reducing methane emissions relative to CO_2 emissions.

The concept of having the government set broad national emission standards, but having flexibility to achieve the goals has been used in the U.S. For example, the trading of emission

reduction credits has been used as a means of achieving real emission reductions of lead in an economically efficient manner. Further, under the proposed Clean Air Act Amendments, a national SO₂ emission target has been identified and each utility company has the choice of achieving SO₂ reductions by either directly reducing emissions at its own facilities or by purchasing allowances from another company, whichever is more economical. The application of such a concept, while never attempted on a cross-pollutant or global scale, would enable each country to achieve emission targets using a least cost approach.

Advantages of the Proposed Approach:

The proposed approach has the following benefits:

- o It would encourage economically efficient approaches within countries and possibly among countries. This is especially important for developing countries that are constrained economically.
- o By addressing greenhouse gases collectively, it would reduce the number of separate protocols, thereby accelerating comprehensive international action.
- o It may serve to facilitate the process of developing a convention even though uncertainties remain over the economic impacts of a protocol. Trading could act as a safety valve, if it turned out that reductions within a country were more expensive than anticipated.
- o It provides flexibility to each country to manage emissions in a manner consistent with its own social and political needs. It allows tradeoffs between sources and sinks, to the extent feasible.
- o It provides incentives to develop and use cost-effective, energy-efficient industrial and consumer products, emission control technologies, reforestation and agricultural practices.
- o It may especially benefit developing countries where low cost emission reductions may be possible and where there is the greatest need for economic support.

Issues to be Addressed:

In developing a convention/protocol(s) along the lines suggested, the following factors would need to be considered:

- o Defining an appropriate Global Warming Potential index. Initial consideration should be given to including at a minimum CO₂, CH₄, and CO. Also, the approach should allow

other gases to be added at a later date as new scientific information is developed. The issue of whether CFCs should be included must be addressed.

- o Establishing global and equitable national targets in terms of the index. This will require estimating each country's emissions by major gas for a baseline year. It will also require careful consideration of when the treaty should enter into force and the need for interim objectives. Each country would be free to allocate current and future emissions in any manner.
- o Evaluating whether and how credits should be given to national governments for actions taken prior to when the convention enters into force, e.g., nuclear power, reforestation, CFC reductions and others.
- o Evaluating alternative administrative, implementation, and enforcement mechanisms, including possibly a system of international emissions trading. International emissions trading could leave the primary burden for arranging trades to the private sector, but national governments will have to provide guidance, monitoring and enforcement. In addition, an international tracking system will be needed to record data and assess trends as a complement to current UN efforts to compile fuel use and other data.
- o Assessing the special needs of developing countries including their specific technological needs, financial requirements and the most appropriate manner for them to participate in such a convention.
- o Evaluating the interrelationship of other complementary global initiatives such as the call to reforest 12 million hectares of forest land per year.
- o Evaluating how to determine credits for sinks, such as reforestation and agricultural practices.

Significant Upcoming Meetings/Deadlines

Jan 1	Comments due on IPCC Response Strategies Working Group Paper on Implementation Mechanisms
Feb 2	IPCC Response Strategies Working Group meeting (officers only)
Feb 5-8	IPCC meeting hosted by U.S. in Washington
March 23-25	Preparatory meeting for July G-7 Economic Summit (tentative)
April 29-May2	U.S. Senate-sponsored Inter-parliamentary Conference on the Global Environment, Washington
[spring]	Meeting hosted by the President on the Environment
May	UN Environment Programme Governing Council Special Session, Nairobi (tentative)
May 8-16	ECE Ministerial Conference on the Environment, Bergen
May 18-20	Preparatory meeting for the July G-7 Economic Summit (tentative)
June 4-8	Meeting of IPCC Response Strategies Working Group to adopt its report, Geneva
June 11-23	World Meteorological Organization (WMO) Executive Committee, Geneva
June 15-17	Preparatory meeting for the July G-7 Economic Summit (tentative)
June 18-20	IPCC Report Drafting Committee meeting, Geneva
August 27-30	IPCC meeting to approve interim report
Oct. 29-Nov. 7	Second World Climate Conference, Geneva
post-November	U.S. has offered to host first negotiating session of framework climate change convention



U.S. Department of Justice
Land and Natural Resources Division

Office of the Assistant Attorney General

Washington, D.C. 20530

December 18, 1989

MEMORANDUM

TO: C. Boyden Gray
Counsel to the President

FROM: Richard B. Stewart *RS*
Assistant Attorney General

SUBJECT: Next Steps on International Approaches to Global
Climate Change

As undertaken at this morning's meeting in your office, this memorandum outlines the steps that should be taken to develop further the proposed United States approach for international agreements dealing with global climate change. This list of steps represents the items considered significant by the representatives of EPA, Justice, State and your office in attendance this morning.

1. Clearance for new U.S. submissions to the RSWG. Clearance must be obtained in the next two weeks for the materials to be submitted to the Intergovernmental Panel on Climate Change ("IPCC") Response Strategies Working Group ("RSWG") for inclusion in the RSWG papers by the January 1, 1990 deadline. The proposed materials for submission to the RSWG -- a set of "Comments" on the RSWG "Legal Measures" paper, and a "Concept Paper" discussing the U.S. proposal -- were attached to the memorandum sent to you yesterday.
2. DPC review. The Domestic Policy Council's Working Group on Global Change, chaired by Dr. Bromley, should take up these matters at its next meeting. If it were held next week, it could be the vehicle for the clearance described in paragraph 1.
3. Pamphlet on comprehensive approach and trading. A pamphlet should be developed, for dissemination in mid-January to RSWG participants, explaining our position on the

benefits of the "comprehensive" and "international trading" approaches to international agreements on greenhouse gases, their sources and sinks, and the drawbacks of other approaches, such as pollutant-by-pollutant and command-and-control methods. The pamphlet should draw on U.S. and international experience with each regulatory method.

4. Response to UNEP initiative on draft convention. This week Dr. Tolba, on behalf of UNEP in Nairobi, requested that all nations suggest language, by January 15, 1990, for a draft framework convention on global climate change. This request appears to compete with the normal IPCC procedures, and to accelerate the schedule for drafting such language. In addition, there may be growing pressure to address this question in the United Nations General Assembly instead of in the IPCC forum. The U.S. should develop a strategy for dealing with this pressure, including consideration of how far to insist on the IPCC's jurisdiction over these matters, and whether to present our substantive proposals to the U.N. if it takes up these matters.

5. Additional needed background work.

Relevant federal agencies should work on the following matters relevant to our proposed approach:

(a) Economic impacts. Assessments should be developed of the economic impacts, on the U.S. and other principal negotiating nations or blocs, of several scenarios for international agreement, including different timetables, baselines, and variances for developing nations within our "comprehensive" approach.

(b) Global Warming Potential Index. A "global warming potential index" should be developed to relate the contribution of each greenhouse gas to total global warming.

(c) List of greenhouse causal factors. The list of greenhouse gases, their sources and sinks, should be developed for inclusion in a "comprehensive" approach to international agreement on climate change.

(d) Monitoring and implementation assurances. Analysis and recommendations should be developed regarding mechanisms for monitoring and implementation assurance provisions in international agreements on climate change. This work should survey and analyze mechanisms used in past international agreements, and recommend the most appropriate mechanisms for both a "comprehensive" approach and an "international trading" approach.

6. Spring 1990 science/economics conference. Work should commence to develop the materials, key speakers, and exhibits that could be assembled at the President's spring science/economics conference on the global environment, in order to educate those attending as to the benefits of our comprehensive and international trading approaches, the drawbacks of traditional command and control regulatory mechanisms, and U.S. and international experience with each system.



U.S. Department of Justice
Land and Natural Resources Division

Office of the Assistant Attorney General

Washington, D.C. 20530

FAX NUMBER (202 786-4215 OR FTS 786-4215)

CONFIRMATION NUMBER (202 OR FTS) 633-2701

FROM: Jonathan Wiener
NUMBER OF PAGES TO BE TRANSMITTED: 2 plus cover
TO: Jeff Holmstead
FAX NUMBER: 456-7929
MESSAGE: _____

Jeff: These are DOE's comments, which were held up for distribution until just now (12:55 pm 12/29/89).

DOE understands these will not make it into the RSWG documents going out today; and I have discussed each comment with Vito Stagliano and Mark Kerrigan at DOE. Some of the comments don't fit into the RSWG process, some conflict with our consensus (re trading and re performance targets) and some are already in the RSWG Report. DOE seems ~~at~~ not to be upset about being too late today — though they will raise their points again in the future.

— Jonathan

BY: XEROX TELECOPIER 7010 :12-28-89

3:04PM ;

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202786421;# 2

2/28/89 15:02 202 586 5313

DOE POLICY OFC

002

DOE PROPOSED REVISIONS TO "COMMENTS ON IPCC
RESPONSE STRATEGIES WORKING GROUP ON LEGAL MEASURES PAPER"

The following is a change in wording of your "Comments" paper

- o Section 2 In first tick, line 5, insert "global" between "controlling" and "net." In the 6th line from the top, strike the words "through national performance targets." In line 8, replace "net greenhouse gas emissions target" with "its obligations under any protocol." In line 11, replace "scientific understanding." with "understanding of the science, economics, and technological advancement."

The following are changes and additions in the IPCC RSWG Legal Measures document (for incorporation into "Comments" paper)

- o Add following ticks to Preamble (Section 1 of Legal Measures Paper):
 - Recognition of the need to base emission limitations protocols on a sound understanding of: (1) state of the science, (2) the economic implications of emissions reductions, and (3) the adequacy of technology development to support response strategies.
 - Countries which have unilaterally reduced their greenhouse gas emissions should be recognized in a subsequent protocol(s).
- o Add ticks under General Obligations (Section 3 of "Legal Measures" paper):
 - While protocols are being negotiated, countries should be encouraged to reduce greenhouse gas emissions voluntarily by pursuing policies that are justified for other reasons, but which also contribute to reduced emissions of greenhouse gases."
 - At set intervals (every 5 years), parties shall conduct assessments of the state of the science, economic implications of emission limitations, and the adequacy of technology development to support further actions, if necessary."
- o Change tick "Recognition of the need for developing countries to increase their present levels of per capita emissions of greenhouse gases in order to meet their development needs" (page 5, tick 8) to "Recognition of the need of developing countries to pursue economic development, which may lead to temporary increases in greenhouse gas emissions. Ultimately the emissions obligations of developing countries will be consistent with those of

developed countries and with general global obligations to protect the environment."

- o Definition (b) Climate Change (section 2, page 3): As proposed the definition addresses effects, not climate change per se. A simple direct definition is needed, such as: "[Climate change means] a systematic change in regional or global climate associated with anthropogenic causes."
- o Definition (c) Adverse effects (section 2, page 3): Change the current definition to: "Effects on human activities or natural resources that are caused directly or indirectly by changes in climate and which are, on balance, detrimental to human health, welfare, or quality of life."

Verification and Enforcement

- o DOE believes that a section should be added to the draft framework convention that identifies the need for verification and enforcement of protocols. We propose the following language for the general principle: "Control protocols should include provisions for institutional mechanisms for verification and enforcement of the protocols."
- o While the draft comments do not propose emissions trading schemes, DOE wants to make clear its concern about such proposals. These schemes have diplomatic and implementation problems. In the view of some countries they imply the right to pollute. Additionally, establishing an equitable base for determining the trading basis is especially difficult to negotiate, e.g.: is the base national aggregate emissions or per capita emissions, etc?



United States Department of State

*Bureau of Oceans and International
Environmental and Scientific Affairs*

Washington, D.C. 20520

DATE: 1/2/89

RAPIDFAX TRANSMISSION

9

PAGE(S) TO FOLLOW

TO:

Jeff HolmsteadMAIL ROUTING CODE White HouseTELEPHONE 456-7803FAX NUMBER 456-7929

FROM:

Daniel ReifsnyderMAIL ROUTING CODE OES/FGCTELEPHONE (202) 647-4069FAX NUMBER (202) 647-5947

SUBJECT: _____

COMMENTS: Attached is a copy of the U.S. comments on the RSWGlegal measures and Economic measures papers, which we transmitted to the IPCCSecretariat and the two Topic Coordinators on 12/29/89.



United States Department of State

*Bureau of Oceans and International
Environmental and Scientific Affairs*

Washington, D.C. 20520

December 29, 1989

Dr. N. Sundararaman
Executive Secretary
Intergovernmental Panel
on Climate Change
c/o WMO, Case Postale No. 5
1211 Geneva 20, Switzerland
Geneva, Switzerland

Dear Dr. Sundararaman:

Enclosed are additional comments of the United States on the economic and legal measures papers which were discussed at the October 2-6, 1989 meeting of the Intergovernmental Panel on Climate Change (IPCC) Response Strategies Working Group. We would appreciate your providing these comments to the topic coordinators for the economic and legal measures papers.

Sincerely,

A handwritten signature in cursive script, appearing to read "Eleanor Savage".

Eleanor Savage, Acting
Deputy Assistant Secretary
for Environment, Health,
and Natural Resources

Enclosure:

As stated.

December 29, 1989

U.S. Comments on the Economic Measures Paper

Given that the paper is inclusive rather than exclusive of differing viewpoints, we hope that the following perspectives can be reflected in the body of the final paper. Suggested insertion points are provided alongside each item.

Page 2, paragraph 1 (substitute for or expand on last sentence):

The ultimate purpose of policy measures to slow climate change is to enhance overall welfare. Overall well-being depends on both the socio-economic and environmental effects of climate change and the socio-economic effects of emission targets and the policy measures implemented to reach them. Whether or not a strict cost benefit approach is applied, it seems clear (to some?) that both kinds of socio-economic impacts must be taken into account in setting policy targets.

Page 5, enumeration of criteria for convention or protocol (additions):

The international policy regime should recognize that the interests of the international community relate to global climate objectives, not the means by which they are achieved.

International measures should recognize any arrangements between individual countries that maintain an overall greenhouse contribution within the sum of their individual obligations as an acceptable compliance strategy.

Page 7, paragraph 1 discussion of right to pollute (points to weave into the discussion):

Both regulation and economic instruments effectively allow for the same right to pollute: the only difference is in the transferability of this right. Regulation does not banish the profit motive, since profit opportunities in regulatory systems are often directly dependent on securing favorable regulatory treatment. The waste of resources in lobbying for favorable regulatory treatment represents a drawback to the regulatory approach.

-2-

Page 9, paragraph 2 discussion of sinks (addition):

An international policy regime that focuses on global climate objectives, rather than the means by which they are achieved, would treat sink creation and emissions reduction as one for one substitutes.

Page 9, enumeration of benefits (additional point):

opportunity for low income rights holders to sell rights to others in exchange for compensation of greater value.

December 29, 1989

U.S. Comments on the Legal Measures Paper

1) Add the following ticks to section 1. (Preamble):

- Recognition of interrelationship among all greenhouse gases, their sources and sinks, and the consequent utility of treating them collectively
- Importance of developing response measures that operate in an equitable and economically efficient and effective manner, and that encourage innovation and diversity in the technological and institutional means of addressing global climate change
- Need to consider the possible socio-economic impacts of policies that might be taken to address climate change
- Recognition that the interests of the international community relate to global climate objectives, and that each country should have maximum flexibility to devise its institutional and other means of achieving these objectives
- Recognition that two or more countries should have the flexibility to meet their aggregate global climate change objectives through joint arrangements of their source and sink policies

2) Add the following ticks to section 3. (General Obligations):

- Development as soon as possible of a protocol addressing all adequately scientifically understood greenhouse gases, their sources and sinks (with appropriate treatment of substances subject to control under the Montreal Protocol), in a comprehensive approach to controlling net emissions of greenhouse gases through national performance targets, leaving to each country the choice of domestic policy responses to achieve its net greenhouse gas emissions target; keep under continuing review the set of greenhouse gases, their sources and sinks, and revise the set, according to evolving understanding of the science, economics, and technological advancement. (This approach is further elaborated in Appendix __.)
- Development of equitable and economically efficient implementation measures, including a system of international emissions trading (see Economic Measures paper, section 5.2). (This approach is further elaborated in Appendix __.)

-2-

3) The second and third ticks on page 4 refer to "emission limitations/reductions". Either add "net" before "emission" in each of these ticks or repeat both these ticks with the word "net" before "emission".

4) Add the following ticks to section 11. (Annexes and Protocols):

- treat all greenhouse gases, their sources and sinks (with appropriate treatment of substances subject to control under the Montreal Protocol) comprehensively, in a single protocol
- international emissions trading

Appendix

U.S. CONCEPT PAPER
COMPREHENSIVE GREENHOUSE GAS APPROACH TO
ADDRESSING CLIMATE CHANGE

Proposal:

The RSWG should seriously: 1) consider the merits of supplementing a framework convention on climate change with one or more protocols that would treat greenhouse gases and their sources and sinks collectively, based on a comparative index of their contributions to global climate change; and 2) evaluate alternative implementation procedures, including international emissions trading.

Summary:

Global emissions of greenhouse gases (CO₂, CH₄, N₂O, CFCs, CO, and other trace gases) are currently increasing in every country because of man's activities. Any effort to curtail these emissions will require a comprehensive and flexible approach that will enable countries to find economically efficient measures to stabilize or reduce net emissions while achieving economic growth. The RSWG should consider whether a framework convention on climate change should establish a process focusing on the collective potential of greenhouse gases to change the climate, rather than on individual greenhouse gases. Countries would be free to select between emission reduction or sink enhancement strategies and among gases, as long as these were consistent with a negotiated "collective" greenhouse gas target. Under this approach, the framework convention would set forth a general goal of stabilizing or reducing net greenhouse gas emissions at levels and dates to be established in a protocol or protocols to the convention to be developed as soon as possible.

A system of international emissions trading could be an option in implementing this approach.

Concepts and Definitions:

Collective treatment of all greenhouse gases will require some method for aggregating and comparing the impacts of each gas on climate variables. Greenhouse gases differ both in their ability to trap heat (more precisely, infrared radiation) and in their atmospheric lifetimes. For example, methane traps infrared radiation approximately 30-40 times more effectively than CO₂, but has a lifetime of 8-12 years, while CO₂ has an effective lifetime of several hundred years. The concept of an index has been proposed as a means of accounting for these differences by providing a comparison of the effects of different greenhouse gases on the climate. Recent papers by B. Assarsson and by Lashof and Ahuja propose two similar approaches for defining such an index. For example, the second paper suggests that the "global

-2-

warming potential" of methane relative to CO2 is 3.7. In other words, a one unit reduction in emissions of methane achieves the same potential environmental benefit as a 3.7 unit reduction in emissions of CO2, according to the Lashof and Ahuja paper. A comprehensive approach to greenhouse gas net emissions targets would employ an index of the global climate impacts of each greenhouse gas. Sources and sinks of greenhouse gases could then be assessed and compared in terms of the index.

The concept of emissions trading has been used successfully in environmental regulation in the United States. For example, the trading of emission reduction credits has been used as a means of achieving real emissions reductions of lead in an economically efficient manner. Further, under the proposed Clean Air Act Amendments, a national SO2 emission target has been identified and each utility company has the choice of achieving SO2 reductions by either directly reducing emissions at its own facilities or by purchasing allowances from another company, whichever is more economical. The application of such a concept, while never attempted on a cross-pollutant or global scale, would enable each country to achieve net emissions targets using a least cost approach.

Advantages of the Approaches:

The comprehensive greenhouse gas approach has the following potential benefits:

- It would encourage economically efficient approaches within countries by permitting each country to meet its net emissions target through the best internal mix of policies addressing the various greenhouse gases, their sources and sinks. This is especially important for developing countries, which are constrained economically.
- By addressing greenhouse gases collectively, it would reduce the number of separate protocols, thereby accelerating comprehensive international action.
- It provides flexibility to each country to manage net emissions in a manner consistent with its own social and political needs. It allows tradeoffs between sources and sinks, to the extent feasible.
- It provides incentives to develop and use cost-effective, energy-efficient industrial and consumer products, emission control technologies, reforestation and agricultural practices, thus avoiding the obstacles to technological innovation that typically accompany individual pollutant regulation.

-3-

-- Addressing greenhouse gases collectively would improve environmental protection by helping to avoid cross-pollutant shifts.

-- It avoids placing inequitable burdens on the nations whose economies rely on activities that emit the particular gas regulated in a first single-gas protocol.

A system of international emissions trading has the following potential benefits:

-- It would encourage economically efficient approaches among countries.

-- It would bolster economic growth and development in developing countries, as they exchange low cost emission reductions for much needed financial assistance.

-- It may serve to facilitate the process of developing a convention even though uncertainties remain over the economic impacts of a protocol. Trading could act as a safety valve, if it turned out that reductions within a country were more expensive than anticipated.

Issues to be Addressed:

In developing a convention/protocol(s) along the lines above, the following factors would need to be considered:

-- Defining an appropriate index for comparing the effects of the different greenhouse gases on the climate. Initial consideration should be given to including at a minimum CO₂, CH₄, and CO. Also, the approach should allow other gases to be added at a later date as new scientific information is developed. The index would then be used to assess and compare the contributions made to global climate change by different sources and sinks of the various greenhouse gases. The issues of whether CFCs should be included, and the choice of an appropriate discount rate to be used in aggregating the potential of gases with varying atmospheric lifetimes to affect the climate, must be addressed.

-4-

-- Establishing global and equitable national targets in terms of the index. This will require estimating each country's emissions by major gas for a baseline year. It will also require careful consideration of when the agreement should enter into force and the need for interim objectives. Each country would be free to allocate current and future net emissions among the various greenhouse gases, their sources and sinks, in any manner.

-- Evaluating whether and how credits should be given to national governments for actions taken prior to when the convention enters into force, e.g., nuclear power, reforestation, CFC reductions and others.

-- Evaluating alternative administrative, implementation, and enforcement mechanisms, including possibly a system of international emissions trading. (International emissions trading could leave the primary burden for arranging trades to the private sector, but national governments will have to provide guidance, monitoring, and enforcement.) In addition, an international tracking system might be needed to record data and assess trends as a complement to current UN efforts to compile fuel use and other data.

-- Assessing the special needs of developing countries including their specific technological needs, financial requirements and the most appropriate manner for them to participate in such a convention.

-- Evaluating the interrelationship of other complementary global initiatives such as the call to reforest 12 million hectares of forest land per year.

-- Evaluating how to determine credits for sinks, such as reforestation and agricultural practices.



United States Department of State

Bureau of Oceans and International
Environmental and Scientific Affairs

Washington, D.C. 20520

12/29

Per your direction,
Jeff - I called
Reifsnider at 4:30
12/29 + said you had
no further comment -
FOR

RAPIDFAX

CANON FAX-620

Date: December 28, 1989Time: 1:55 p.m.FROM:Name: Dan ReifsniderTEL. No 647-4069Office Symbol/Number OES/EGCFax No. 647-5947

Document Description: Final versions Pages to Follow: 6
of "Comments on the RSWG Legal Measures Paper" and the
"U.S. Concept Paper"

*****TO:Name: Nancy MaynardTel. No.: 395-3902Office Symbol/Number OSTPFax No.: 395-3261*****
*****MESSAGE

114

Per our discussion. Please pass copy to Jeff Holmstead in
Boyden Gray's office. We intend to transmit these papers to
the IPCC Secretariat at 5:00 p.m. tonight, along with comments
on the "Economic Measures" Paper that were developed by CEA and
cleared with U.S. agencies, in order to meet the January 1
deadline. Please phone me ASAP if you see any problem.

2)

Comments on IPCC Response Strategies Working Group
Legal Measures Paper

1) Add the following ticks to section 1. (Preamble):

- Recognition of interrelationship among all greenhouse gases, their sources and sinks, and the consequent utility of treating them collectively
- Importance of developing response measures that operate in an equitable and economically efficient and effective manner, and that encourage innovation and diversity in the technological and institutional means of addressing global climate change
- Need to consider the possible socio-economic impacts of policies that might be taken to address climate change
- Recognition that the interests of the international community relate to global climate objectives, and that each country should have maximum flexibility to devise its institutional and other means of achieving these objectives
- Recognition that two or more countries should have the flexibility to meet their aggregate global climate change objectives through joint arrangements of their source and sink policies

2) Add the following ticks to section 3. (General Obligations):

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- Development of equitable and economically efficient implementation measures, including a system of international emissions trading (see Economic Measures paper, section 5.2). (This approach is further elaborated in Appendix __.)

3) The second and third ticks on page 4 refer to "emission limitations/reductions". Either add "net" before "emission" in each of these ticks or repeat both these ticks with the word "net" before "emission".

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4) Add the following ticks to section 11. (Annexes and Protocols):

- treat all greenhouse gases, their sources and sinks (with appropriate treatment of substances subject to control under the Montreal Protocol), comprehensively, in a single protocol
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Summary:

Global emissions of greenhouse gases (CO₂, CH₄, N₂O, CFCs, CO, and other trace gases) are currently increasing in every country because of man's activities. Any effort to curtail these emissions will require a comprehensive and flexible approach that will enable countries to find economically efficient measures to stabilize or reduce net emissions while achieving economic growth. The RSWG should consider whether a framework convention on climate change should establish a process focusing on the collective potential of greenhouse gases to change the climate, rather than on individual greenhouse gases. Countries would be free to select between emission reduction or sink enhancement strategies and among gases, as long as these were consistent with a negotiated "collective" greenhouse gas target. Under this approach, the framework convention would set forth a general goal of stabilizing or reducing net greenhouse gas emissions at levels and dates to be established in a protocol or protocols to the convention to be developed as soon as possible.

A system of international emissions trading could be an option in implementing this approach.

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The concept of emissions trading has been used successfully in environmental regulation in the United States. For example, the trading of emission reduction credits has been used as a means of achieving real emissions reductions of lead in an economically efficient manner. Further, under the proposed Clean Air Act Amendments, a national SO₂ emission target has been identified and each utility company has the choice of achieving SO₂ reductions by either directly reducing emissions at its own facilities or by purchasing allowances from another company, whichever is more economical. The application of such a concept, while never attempted on a cross-pollutant or global scale, would enable each country to achieve net emissions targets using a least cost approach.

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-3-

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-4-

-- Establishing global and equitable national targets in terms of the index. This will require estimating each country's emissions by major gas for a baseline year. It will also require careful consideration of when the agreement should enter into force and the need for interim objectives. Each country would be free to allocate current and future net emissions among the various greenhouse gases, their sources and sinks, in any manner.

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-- Assessing the special needs of developing countries including their specific technological needs, financial requirements and the most appropriate manner for them to participate in such a convention.

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-- Evaluating how to determine credits for sinks, such as reforestation and agricultural practices.



U.S. Department of Justice
Land and Natural Resources Division

Office of the Assistant Attorney General

Washington, D.C. 20530

December 28, 1989

MEMORANDUM

TO: Hon. D. Allan Bromley
Assistant to the President
for Science and Technology
Chairman, Domestic Policy Council Working Group
on Global Change

C. Boyden Gray
Counsel to the President

FROM: Richard B. Stewart *RS*
Assistant Attorney General

SUBJECT: Revisions to Submissions to IPCC/RSWG Legal Measures
Paper

This memorandum transmits the two documents proposed for submission to the IPCC Response Strategies Working Group ("RSWG"): the "Comments on the RSWG Legal Measures Paper" and the "U.S. Concept Paper." Following the meeting of the DPC Working Group on Global Change last Tuesday, December 19, 1989, and subsequent amendments made in light of that meeting, these documents were then recirculated for comment by the DPC Working Group.

The attached materials now reflect all further comments received by close of business December 27, 1989. Changes are underlined in ink and indicated in the margin. If the documents are now satisfactory, they may be submitted to the RSWG by the State Department before the RSWG deadline of January 1, 1990.

cc: Frederick M. Bernthal, State Department
Scott Hajost, EPA
Kenneth P. Yale, DPC

Comments on IPCC Response Strategies Working Group
Legal Measures Paper

1) Add the following ticks to section 1. (Preamble):

- Recognition of interrelationship among all greenhouse gases, their sources and sinks, and the consequent utility of treating them collectively
- Importance of developing response measures that operate in an equitable and economically efficient and effective manner, and that encourage innovation and diversity in the technological and institutional means of addressing global climate change
- Need to consider the possible socio-economic impacts of policies that might be taken to address climate change
- Recognition that the interests of the international community relate to global climate objectives, and that each country should have maximum flexibility to devise its institutional and other means of achieving these objectives.
- Recognition that two or more countries should have the flexibility to meet their aggregate global climate change objectives through joint arrangements of their source and sink policies.

2) Add the following ticks to section 3. (General Obligations):

- Development as soon as possible, following agreement on a framework convention, of a protocol addressing all adequately scientifically understood greenhouse gases, their sources and sinks (with appropriate treatment of substances subject to control under the Montreal Protocol), in a comprehensive approach to controlling net emissions of greenhouse gases through national performance targets, leaving to each country the choice of domestic policy responses to achieve its net greenhouse gas emissions target; keep under continuing review the set of greenhouse gases, their sources and sinks, and revise the set, according to evolving scientific understanding. (This approach is further elaborated in Appendix ____.)
- Development of equitable and economically efficient implementation measures, including a system of international emissions trading (see Economic Measures paper, section 5.2). (This approach is further elaborated in Appendix ____.)

3) The second and third ticks on page 4 refer to "emission limitations/reductions". Either add "net" before "emission" in each of these ticks or repeat both these ticks with the word "net" before "emission".

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4) Add the following ticks to section 11. (Annexes and Protocols):

- treat all greenhouse gases, their sources and sinks (with appropriate treatment of substances subject to control under the Montreal Protocol) comprehensively, in a single protocol
- international emissions trading

Appendix

U.S. CONCEPT PAPER COMPREHENSIVE GREENHOUSE GAS APPROACH TO A FRAMEWORK CONVENTION ON CLIMATE CHANGE

Proposal:

The RSWG should seriously: 1) consider the merits of following a framework convention on climate change with one or more protocols that would treat greenhouse gases and their sources and sinks collectively, based on a comparative index of their contributions to global climate change; and 2) evaluate alternative implementation procedures, including international emissions trading.

Summary:

Global emissions of greenhouse gases (CO₂, CH₄, N₂O, CFCs, CO, and other trace gases) are currently increasing in every country because of man's activities. Any effort to curtail these emissions will require a comprehensive and flexible approach that will enable countries to find economically efficient measures to stabilize or reduce net emissions while achieving economic growth. The RSWG should consider whether a framework convention on climate change should establish a process focusing on the collective potential of greenhouse gases to change the climate, rather than on individual greenhouse gases. Countries would be free to select between emission reduction or sink enhancement strategies and among gases, as long as these were consistent with a negotiated "collective" greenhouse gas target. Under this approach, the framework convention would set forth a general goal of stabilizing or reducing net greenhouse gas emissions at levels and dates to be established in a protocol or protocols to the convention to be developed as soon as possible.

A system of international emissions trading could be an option in implementing this approach.

Concepts and Definitions:

Collective treatment of all greenhouse gases will require some method for aggregating and comparing the impacts of each gas on climate variables. Greenhouse gases differ both in their ability to trap heat (more precisely, infrared radiation) and in their atmospheric lifetimes. For example, methane traps infrared radiation approximately 30-40 times more effectively than CO₂, but has a lifetime of 8-12 years, while CO₂ has an effective lifetime of several hundred years. The concept of an index has been proposed as a means of accounting for these differences by providing a comparison of the effects of different greenhouse gases on the climate. Recent papers by B. Assarsson and by

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Lashof and Ahuja propose two similar approaches for defining such an index. For example, the second paper suggests that the "global warming potential" of methane relative to CO₂ is 3.7. In other words, a one unit reduction in emissions of methane achieves the same potential environmental benefit as a 3.7 unit reduction in emissions of CO₂, according to the Lashof and Ahuja paper. A "collective" approach to greenhouse gas net emissions targets would employ an index of the global climate impacts of each greenhouse gas. Sources and sinks of greenhouse gases could then be assessed and compared in terms of the index.

The concept of emissions trading has been used successfully in environmental regulation in the United States. For example, the trading of emission reduction credits has been used as a means of achieving real emissions reductions of lead in an economically efficient manner. Further, under the proposed Clean Air Act Amendments, a national SO₂ emission target has been identified and each utility company has the choice of achieving SO₂ reductions by either directly reducing emissions at its own facilities or by purchasing allowances from another company, whichever is more economical. The application of such a concept, while never attempted on a cross-pollutant or global scale, would enable each country to achieve net emissions targets using a least cost approach.

Advantages of the Approaches:

The "collective" greenhouse gas approach has the following potential benefits:

- It would encourage economically efficient approaches within countries by permitting each country to meet its net emissions target through the best internal mix of policies addressing the various greenhouse gases, their sources and sinks. This is especially important for developing countries, which are constrained economically.
- By addressing greenhouse gases collectively, it would reduce the number of separate protocols, thereby accelerating comprehensive international action.
- It provides flexibility to each country to manage net emissions in a manner consistent with its own social and political needs. It allows tradeoffs between sources and sinks, to the extent feasible.
- It provides incentives to develop and use cost-effective, energy-efficient industrial and consumer products, emission control technologies, reforestation and agricultural practices, thus avoiding the obstacles to technological innovation that typically accompany individual pollutant regulation.

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-- Addressing greenhouse gases collectively would improve environmental protection by helping to avoid cross-pollutant shifts.

-- It avoids placing inequitable burdens on the nations whose economies rely on activities that emit the particular gas regulated in a first single-gas protocol.

A system of international emissions trading has the following potential benefits:

-- It would encourage economically efficient approaches among countries.

-- It would bolster economic growth and development in developing countries, as they exchange low cost emission reductions for much needed financial assistance.

-- It may serve to facilitate the process of developing a convention even though uncertainties remain over the economic impacts of a protocol. Trading could act as a safety valve, if it turned out that reductions within a country were more expensive than anticipated.

Issues to be Addressed:

In developing a convention/protocol(s) along the lines above, the following factors would need to be considered:

-- Defining an appropriate index for comparing the effects of the different greenhouse gases on the climate. Initial consideration should be given to including at a minimum CO₂, CH₄, and CO. Also, the approach should allow other gases to be added at a later date as new scientific information is developed. The index would then be used to assess and compare the contributions made to global climate change by different sources and sinks of the various greenhouse gases. The issues of whether CFCs should be included, and the choice of an appropriate discount rate to be used in aggregating the potential of gases with varying atmospheric lifetimes to affect the climate, must be addressed.

-- Establishing global and equitable national targets in terms of the index. This will require estimating each country's emissions by major gas for a baseline year. It will also require careful consideration of when the agreement should enter into force and the need

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for interim objectives. Each country would be free to allocate current and future net emissions among the various greenhouse gases, their sources and sinks in any manner.

-- Evaluating whether and how credits should be given to national governments for actions taken prior to when the convention enters into force, e.g., nuclear power, reforestation, CFC reductions and others.

-- Evaluating alternative administrative, implementation and enforcement mechanisms, including possibly a system of international emissions trading. (International emissions trading could leave the primary burden for arranging trades to the private sector, but national governments will have to provide guidance, monitoring, and enforcement.) In addition, an international tracking system might be needed to record data and assess trends as a complement to current UN efforts to compile fuel use and other data.

-- Assessing the special needs of developing countries including their specific technological needs, financial requirements and the most appropriate manner for them to participate in such a convention.

-- Evaluating the interrelationship of other complementary global initiatives such as the call to reforest 12 million hectares of forest land per year.

-- Evaluating how to determine credits for sinks, such as reforestation and agricultural practices.