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

May 7, 1991

MEMORANDUM TO CHASE UNTERMEYER

FROM: D. ALLAN BROMLEY

SUBJECT: WORKSHOP IN PUERTO RICO TO DEVELOP PLANS FOR
A WESTERN HEMISPHERE GLOBAL CHANGE
RESEARCH INSTITUTE

Dean

You may recall that the concept of a regional global change institute was proposed during the White House Conference on the Science and Economics of Global Change last April. During the President's very successful Latin American trip last December, I had the opportunity to discuss the proposed institute, along with other science, technology and environmental issues with senior officials in Brazil, Uruguay, Argentina, Chile, and Venezuela. The meetings resulted in a good exchange of views and enthusiastic support for the institute concept in each of the five countries visited.

Armed with this enthusiastic response, I have asked the Committee on Earth and Environmental Sciences of the Federal Coordinating Council for Science, Engineering and Technology (FCCSET) to plan and host a scientific workshop. It will provide a forum for discussion of the concept of a regional global change institute by the countries in the Western Hemisphere.

We are planning to hold the workshop in San Juan, Puerto Rico from July 15 to July 18, 1991. Because of your responsibilities for and interest in Puerto Rico, I wanted to let you know of our plans. I am attaching a copy of the draft agenda and the participant list to date. I would be happy to receive any advice that you may have.

Attachments

WORKSHOP AGENDA -- PUERTO RICO

Monday, July 15 - Arrival

- 3:00 - 6:00: Registration
- 6:00 - 7:00: Reception
Introduction: Dallas Peck
Welcome: President U.P.R. (tentative)
- 7:00 - 9:00: Dinner (Speaker: TBD) —
Possible candidates:
Noel Brown - UNEP Amb. to UN
Ariel Lugo - LTER, Puerto Rico
M.G.K. Menon - Minister S&T, India
Jose Sarukhan - Mexico
Raphael Steer - Columbia (IOCARIBE)
M. Swaminathan - Int. Union
Sir Crispin Tickell - (former) UK Amb. to UN

Tuesday, July 16

- 9:00 - 10:30: Plenary Session I (Chair: R. Corell)
Peck introduces Bromley
Bromley opens (30 min.)
Setting stage, charge, objectives, etc. (60 min.)
- 10:30 - 11:00: Coffee Break
- 11:00 - 1:00: Plenary Session II (Chair: R.W. Corell)
Delegation Presentations
- 1:00 - 2:30: Lunch
- 2:30 - 4:00: Plenary Session II cont.
Delegation Presentations
- 4:00 - 4:30: Coffee Break
- 4:30 - 6:30: Chair's Summary, General Discussion of Working Group Tasks (see below), Instructions for Sign-up, Chair's instructions to Working Group Chairs and Rapporteur appointments
- 6:30 - 10:00: Sign up for Working Groups
Dinner (individual arrangements)
- (Staff prepares and posts sign-up lists for next day's discussion)

Wednesday, July 17

9:00 - 10:30: Working Group 1 (Plenary Working Group) - Laying out the issues; country priorities on the science agenda:

What are the regionally relevant scientific issues worth studying in terms of the causes and effects of global change and the interactions between change, ecological processes, and economic impacts?

What type of evaluation mechanism will assure the excellence and credibility of the scientific research?

How can this inter-disciplinary scientific agenda be structured in order to be receptive to broader public policy needs?

What functions are necessary for the support of the scientific agenda (in terms of the conduct of research, management of data, organization of education programs and regional/global interactions)?

10:30 - 11:00: Coffee Break

11:00 - 1:00: Working Group 1 (continued)

1:00 - 2:30: Lunch Break

2:30 - 4:00: Working Group 1: Continues to pursue the issues from the morning session; purpose is to work out the details based on opinions/positions expressed in the earlier session.

Working Group 2: What type of facilities, management structure, and staffing requirements are necessary for the Institute to fulfill these functions? What are the most necessary, viable and appropriate long-term funding mechanisms for the core facility and what are the funding needs and/or possibilities to augment research at affiliated locations within the region?

4:00 - 4:30: Coffee Break

4:30 - 6:30: Working Group 1 (complete work and set up drafting groups)

Working Group 2 (continue)

6:30 on Dinner (individual arrangements)

Thursday, July 18

9:00 - 10:30: Plenary: Chair ?
Working Group 1 delivers draft
Working Group 2 delivers status report

10:30 - 11:00: Coffee Break

11:00 - 1:00: Working Group 1 (finalizing recommendations)
Working Group 2 (complete work and begin drafting)

1:00 - 2:30: Lunch Break

2:30 - 4:00: Working Group 2 (drafting)
Working Group 3 (Plenary minus drafters)
(Based on the recommendations of Working Group 1
and the status report of Working Group 2) What
should the criteria be for locating the
Institute's core facility and developing links
to affiliated research sites, assuming that the
objectives are responsiveness to regional needs
and interests, a global orientation, and linking
to and augmenting existing resources?

4:00 - 4:30: Coffee Break

4:30 - 6:30: Working Group 3 (complete work and draft)

6:30 on Dinner (individual arrangements)

Friday, July 19

9:00 - 10:30: Plenary: Consideration and Adoption of Report

10:30 - 11:00: Coffee Break

11:00 - 1:00: Concluding Remarks: R.W.Corell
Closing of the Workshop: Dallas Peck

Western Hemisphere Institute Planning Workshop

Antigua: NO RESPONSE

Argentina: NO RESPONSE

Bahamas: NO RESPONSE

Barbados: NO RESPONSE

Belize: NO RESPONSE

Bolivia: NO RESPONSE

Brazil: WILL PARTICIPATE

Edson Machada, Deputy Secretary of Science and Technology
Eneas Salati, Director of National Institute for Amazon
Research (INPA)

Canada: ~~PENDING DECISION~~ Will participate 4/30

Government will probably participate but has not yet made a final decision. "Initial Canadian reaction to the Institute proposal is lukewarm."...Funding is a major concern. concerned that call for institute in Western Hemisphere might lead to call for others. Canada would like to see more use of IIASA.

Chile: WILL PARTICIPATE

Dr. Humberto Fuenzalida
National Coordinator, Chilean Working Group for Global
Change

Columbia: NO RESPONSE

Costa Rica: WILL PARTICIPATE

Max Campos
Jefe Del Departamento De Climatologia Bm
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San Jose, Costa Rica

Eduardo Lopez
Subdirector General del Servicio Forestero

Honduras: WILL PARTICIPATE

Ingeniero Franklin Bertrand Anduray
Executive Secretary
National Commission for Environment and Development (CONAMA)
Edificio Palmira
Tegucigalpa, Honduras

Jamaica: WILL PARTICIPATE

GOJ is uncertain about level of participation until receipt of invitation. Invitations should be sent to :

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Dr. Ted Aldridge, Special Advisor on
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Mexico: WILL PARTICIPATE

No official designation has been made. Environment Undersecretary Sergio Reyes thinks he might attend. Soberon is interested. Foreign Ministry will probably make final decision and send at least one representative, possibly Victor Lichtinger

Netherland Antilles: WILL NOT PARTICIPATE

Uruguay: WILL PARTICIPATE

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July 30, 1991

MEMORANDUM FOR D. ALLAN BROMLEY

FROM: NANCY G. MAYNARD 

SUBJECT: (1) Global Change Research Institutes: Status
(2) Inter-American Institute for Global Change Research
Workshop: July 15-19, 1991

To provide you with a summary document on the global change research institutes (concept development and status), I have prepared a brief outline of events leading up to the workshop as well as a description of the details of the workshop itself.

Background

At the White House Conference on Science and Economics Research Related to Global Change in April 1990, a proposal was presented by the US to establish several global change research institutes to bring together the critical mass of research and capabilities to undertake global change research in three important regions of the world: the Americas, Europe/Africa, and the far East/SW Pacific.

During the year following this proposal, Dr. D. Allan Bromley encouraged the further development of the concept and it was decided that the first institute to be set up should be an Institute in the Western Hemisphere (the Americas). It was also decided to hold a workshop to carry out the detailed planning for the Western Hemisphere Institute. It was concluded that, in order to be successful, the countries of the region would have to have a strong feeling of ownership of the institute development and implementation. To accomplish this, the specific scientific and organizational elements had to be designed by the participating countries from that region. In fact, the workshop was conducted accordingly and I think that this approach was the key to the overwhelming success (both politically and substantively) of the workshop.

To carry out the planning and organization of the workshop, Dr. Bromley determined that the workshop should be under the sponsorship of the Committee on Earth and Environmental Sciences (CEES) Global Change Working Group (GCWG) and he appointed Dr. Robert Corell, Chairman of the GCWG, as Director of the Workshop. Dr. Corell, in turn, set up a small ad hoc, interagency group to coordinate planning activities for the institute, and, in addition, tasked the GCWG Task Group on International Coordination and Development ("TG 10") to assist the ad hoc group in the planning for the workshop.

Over the months preceding the July workshop, the small ad hoc group and the TG-10 Task Force, in close cooperation with OSTP, developed the detailed plans for the workshop. As a result of this planning effort plus a number of consultations with high level representatives from a number of Latin American Countries, it was decided to hold the workshop in Puerto Rico in July 1991.

The Workshop

Representatives of 22 countries from the region plus a number of "observer" countries and international organizations attended the workshop in San Juan, Puerto Rico, from July 15-19, 1991. [A participant list is attached at Tab A]

During the workshop, the attendees were asked to consider and to prepare options/recommendations on three specific issues: (1) The science agenda, (2) Organization and management, and (3) Criteria for selection of a site or sites. [Agenda is attached at Tab B]

To lay a foundation for the Workshop's discussions, the representatives of the countries of the region, the observer countries, and the participating international organizations made brief presentations on their interests in global change research and related activities in the region. Following the country and organization presentations, the Workshop participants then addressed the main objectives of the Workshop through three working groups: (1) the Science Agenda, (2) Organization and Management, and (3) Criteria for Site Selection. Each working group had a chair and two vice chairs from various countries in the region. In addition, in order to expedite the preparation of a preliminary report to be distributed at the workshop, a Secretariat team was assigned to each working group to take notes and develop a working draft report from each of the working groups. After extensive discussion in the working groups, draft report were prepared by each group.

The three working groups presented their reports to the full Plenary session on the morning of the final day of the workshop for review and discussion by all participants. A draft workshop report, consisting of the three working group reports and statements delivered by participating countries and organizations was approved by participants in final Plenary. The draft report is presently being further reviewed by workshop participants and, upon completion of that review, a Final Report of the Workshop will be distributed to governments, interested international organizations, and other potential participants and sponsors in preparation for subsequent meetings. [Draft report attached at Tab C]

Post-Workshop Activities:

(1) Interim Working Group

During the final session of the workshop in Puerto Rico, on July 19, the representatives of the participating countries established an interim Working Group to address follow-up actions from the workshop and to prepare more detailed proposals to be presented to a second workshop to be held in 1992.

The working group shall be composed of 12 members. These shall include 8 participants from the San Juan workshop - 2 from North America, 1 from Central America, 1 from the Caribbean, and 4 from southern South America (1 from northern South America, 1 from southern South America; 1 at-large, and 1 from Brazil). Four members shall be scientists designated by ICSU, taking into account nominations from the countries in the region. The Group would select its chairman from among its members. The Working Group will be supported by the services of a small secretariat provided by the USA.

The members of the working group representing the Puerto Rico Workshop (and selected by the participants during the final session) are as follows (an alternate country/delegate was also chosen in most cases - a few names are presently being settled):

Delegate	Alternate
Brazil (no name)	Brazil
Venezuela (Herrera)	Colombia (Casas)
Argentina (Cersosimo)	Uruguay (Brum)
Chile (Fuenzalida)	Chile
Jamaica (Taylor)	Dominican Republic (Moya Saba)
Nicaragua (Jerez)	Panama (Garibaldi)
Mexico (DeAlba)	Canada (no name)
United States (Corell)	US (Hall)

The Charge of the Working Group is presented in detail in the Terms of Reference developed by the workshop participants. [The TORs are attached at Tab D]

(2) Second Workshop

A second workshop has been planned for March 1992 with the same composition as the Puerto Rico workshop to finish the work of the Interim Group and plan for the high level meeting in April 1992.

Future Actions:

1. A small secretariat (in NSF) is being set up to assist the Interim Working Group in its activities. OSTP staff will work with the secretariat to insure close cooperation.
2. Dr. Corell (with Michael Hall as back-up) will serve as US interface through his membership on the Interim Working Group.
3. It is anticipated that a second workshop will be held in March 1992 to finish the details from the first workshop and to prepare for the high level meeting in April.

4. It is proposed that a high level meeting will be held in April 1992 to consider the options, recommendations, and other results from the second workshop.

OSTP Follow-up Actions:

1. Maynard will continue to serve as OSTP interface to US coordination group/secretariat

2. Letters of thank you to the US team should be sent by Dr. Bromley (drafts for editing are forthcoming). The success of this effort is due in large part to very careful work and long hours of the US team both in the months prior to the workshop and during the workshop.

Comment

In my estimation, the workshop was a complete success - scientifically, politically, and substantively - in terms of meeting stated objectives. The original premise of this workshop was to have the concept development and the detailed planning for an institute to be accomplished by the countries in the region, not through directives by the United States. This objective was accomplished through a remarkable degree of cooperation by the participants and all recommendations prepared by the workshop participants were unanimously adopted by the workshop attendees.

Through the combined success of this first workshop and the subsequent planning effort of the Interim Working Group (and its second workshop), it would appear that a detailed set of recommendations and options for the development of a global change research institute will be ready for discussion by a high level group of country representatives at a meeting in April 1992.

It is significant that this first institute - as a prototype for the others proposed by the US to follow - will be a tangible and very positive indication that the US means business in our pledge to work with developing countries as well as other developed countries to address the important science questions on global change - on both a global and regional basis. In addition, it also makes clear that we are serious in our statements that we do want to help developing countries strengthen their own infrastructure, expertise, and capabilities to study and deal with global climate change and its impacts. Furthermore, it is also a tangible contribution/proposal that the US may wish to bring to the table at UNCED.

*Workshop for Development of a
Western Hemisphere Institute for Global Change Research*

*Taller Para el Desarrollo de un Instituto de las Américas
Para Investigaciones Sobre el Cambio Global*

San Juan, Puerto Rico
15 — 19 July 1991

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Workshop for Development of a
Western Hemisphere Institute for Global Change Research

Taller Para el Desarrollo de un Instituto de las Américas para
Investigaciones Sobre el Cambio Global

PROPOSED AGENDA

Monday, July 15

- 3:00 - 6:00 Registration (outside Room 602)
- 7:00 - 8:00 Reception (7th floor, La Galeria)
- 8:00 - Dinner (6th floor, Silver East))

Tuesday, July 16

- 8:00 - 9:00 Sign-up for Statements:
 Countries, Observers (for Plenary Session I)
 International Scientific Organizations (for Working
 Group 1)
- 9:00 - 10:30 Plenary Session I (Gold Room)
- Introductory Remarks: Dr. Dallas L. Peck
 Keynote Address: Dr. D. Allan Bromley
 Overview of Objectives: Dr. Robert W. Corell
 Review of Agenda and Working Group
 Arrangements: Dr. Corell
- 10:30 - 11:00 Morning Break
- 11:00 - 1:00 Plenary Session II (Gold Room)
- Country Statements: Brief discussions (approximately 8 -
 10 minutes) on each country's specific research interests and
 priorities in the field of global change.

- 11:00 - 1:00 **Working Group 1** (continued)
- 1:00 - 2:30 **Lunch Break** (Silver West 3 and Silver East 2) (Gold Room)
- 2:30 - 4:00 **Working Group 1** (continued)
- 2:30 - 4:00 **Working Group 2: Organization and Management** (Gold Room)
- Topics suggested for discussion:
- What facilities should the Institute have?
- How should the Institute be organized and staffed?
- What management structure would be appropriate?
- What are the financial implications of these requirements?
- 4:00 - 4:30 *Afternoon Break*
- 4:30 - 6:30 **Working Group 1** (completes work and begins drafting)
- 4:30 - 6:30 **Working Group 2** (continued)
- Dinner (individual arrangements)

Thursday, July 18

- 9:00 - 10:30 **Plenary Session III** (Silver East)
- Working Group 1 delivers draft report
Working Group 2 presents progress report
- 10:30 - 11:00 *Morning Break*
- 11:00 - 1:00 **Working Group 1** (finalizes report) (Silver West 1 & 2)
- 11:00 - 1:00 **Working Group 2** (completes work and begins drafting) (Silver East)
- 1:00 - 2:30 **Lunch Break**

- 1:00 - 2:30 Lunch (Silver West 1 & 2)
- 2:30 - 4:00 **Plenary Session II** (Country Statements continued)
- 4:00 - 4:30 *Afternoon Break*
- 4:30 - 6:30 **Plenary Session II** (continued)
- Observer Statements
Chair's Summary and Charge to Working Groups.
- Dinner (individual arrangements)

Wednesday, July 17

- 9:00 - 10:30 **Working Group 1: Science Agenda** (Silver West 1 & 2)
- International Scientific Organizations Presentations: Brief discussions (approximately 8 - 10 minutes) on each organization's research interests in the field of global change.
- Discussions:
- Topics suggested for Working Group discussion:
- What are the regionally relevant scientific issues worth studying in terms of the causes and effects of global change and the interactions between change, ecological processes, and economic impacts?
- How can this inter-disciplinary scientific agenda be structured in order to be receptive to broader public policy needs?
- What functions are necessary for the support of the scientific agenda (in terms of the conduct of research, management of data, organization of education programs and regional/global interactions)?
- What type of evaluation mechanism will assure the excellence and credibility of the scientific research?
- 10:30 - 11:00 *Morning Break*

2:30 - 4:00 **Working Group 2** (finalizes report)

2:30 - 4:00 **Working Group 3 - Criteria for Site Selection** (Silver West 1 & 2)

Topics suggested for discussion:

Based on the recommendations for the scientific agenda and the organization and structure of the Institute, what criteria should govern site selection for the Institute?

4:00 - 4:30 *Afternoon Break*

4:30 - 6:30 **Working Group 3** (completes work and drafts report)

Dinner (individual arrangements)

Friday, July 19

9:00 - 9:30 **Working Group 3** (finalizes report)

9:30 - 10:30 **Plenary Session IV** (Silver East)

Working Groups 2 and 3 Deliver Reports
Review and Adoption of Final Report

10:30 - 11:00 *Morning Break*

11:00 - 1:00 **Plenary Session IV** (continued)

1:00 **Closure of Meeting**

**Development
of a
Western Hemisphere Institute
for
Global Change Research**

**Taller Para el Desarrollo de un Instituto de las Americas para
Investigaciones Sobre el Cambio Global**

A Report of a Workshop

**San Juan, Puerto Rico
15 -19 July 1991**

TABLE OF CONTENTS

- i. Executive Summary
- 1. An Introduction and Overview to a Western Hemisphere
Institute for Global Change Research
- 2. The Science Agenda
- 3. Management and Organizational Arrangements for the
Institute
- 4. Criteria for Selection of Sites

Appendices:

- I. Participants List
- II. Dr. D. Allan Bromley's Keynote Address
- III. Workshop Agenda
- IV. Summaries of Statements delivered by
participating countries, observers, and
international scientific organizations.
- V. Glossary
- VI. List of Acronyms

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Overview and Background

In order to understand global change, it is essential to study important aspects of such change on a regional as well as global basis. Improved knowledge of regional physical and biogeochemical processes, and their social and economic causes and implications is needed to determine how these dynamic processes and trends interact with and affect the total Earth system.

To this end, the U.S. proposed establishment of several global change research institutes to bring together the critical mass of resources and capabilities to undertake global change research in three important regions of the world: the Western Hemisphere, Europe/Africa, and the Far East/Southwest Pacific. This proposal was presented during the White House Conference on Science and Economics Research Related to Global Change in April 1990. In his closing speech to the Conference, President Bush endorsed these institutes as joint partnerships between industrialized and developing countries.

Overall Strategy and Concept

To further develop this concept, a "Workshop for Development of a Western Hemisphere Institute for Global Change Research" was convened on July 16-19, 1991, in San Juan, Puerto Rico. The goal of this Workshop was to design an institute to conduct and facilitate scientific, social and economics research on global change issues that are both unique to the region and important to the world. The objectives of the Workshop were: (1) to develop a regional consensus for a scientific and management agenda for such an institute; (2) to decide on the overall role such an institute should play in global change research and develop an organizational plan; (3) to identify criteria for the siting of such an institute; and (4) to discuss funding requirements and mechanisms for obtaining funding.

This Report presents the results of the Workshop. Participants prepared options and/or recommendations regarding the scientific agenda, organization and structure, and siting criteria for a regional institute which the Workshop decided should be called the *Inter-American Institute for Global Change Research*. It was decided that options/recommendations should be distributed to governments and to interested international organizations for their consideration in preparation for a subsequent meeting to (1) consider, modify (if necessary), and approve these recommendations, and (2) commit financial and in-kind resources for the Institute's establishment and operations.

Opening of the Meeting

Dr. Dallas L. Peck, Chairman of the U.S. interagency Committee on Earth and Environmental Sciences (CEES) and Host for the Workshop, opened the meeting and welcomed the participants. Representatives of twenty-two countries participated in the Workshop, as did representatives of other countries and

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international organizations interested in this concept (a list of participants is provided in Appendix I). Dr. Peck introduced Dr. D. Allan Bromley, Assistant to the President for Science and Technology, who presented the keynote address. Dr. Bromley indicated that the most important objective for the Workshop should be to develop a scientific agenda for a Western Hemisphere Institute for Global Change Research. He urged that this agenda reflect consensus and be based on the widest possible inputs from the countries of the region. He recommended that such a scientific agenda be built on existing capabilities and take full advantage of unique local and regional opportunities.

Dr. Bromley noted that such a global change research agenda should include engineering and social sciences, especially economics. He emphasized the importance of studies of the interactions between global change, ecological processes, and economic impacts (this address is included as Appendix II).

Dr. Peck then introduced Dr. Robert W. Corell, Chairman of the CEES Working Group on Global Change and Chairman of the Workshop. Dr. Corell presented the draft agenda, a slightly revised version of the first draft agenda which had been distributed to potential participants prior to the Workshop. The revised agenda called upon the Workshop to consider and to prepare options/recommendations on three specific issues -- a scientific agenda; organization and management; and criteria for selection of a site (or sites) for an institute. The Workshop approved the Agenda (see Appendix III).

To lay a foundation for the Workshop's discussions, the representatives of the countries of the region; the observer countries; and the participating international organizations made brief presentations on their interests in global change research and related activities in the region (summaries of these presentations are provided in Appendix IV). These presentations demonstrated strong support for the concept of a Western Hemisphere Institute for Global Change Research. X

The presentations also emphasized the importance of addressing global change problems in a regional context in order to meet the needs of the countries of the region, as well as to take advantage of the unique features of these countries. The presentations emphasized the need for interdisciplinary research, based upon reliable and compatible data, to understand atmospheric, terrestrial, and oceanic processes. This emphasis was carried over into the Workshop's discussions of a scientific agenda for the Institute.

Following the country and organization presentations, the Workshop participants then addressed the main objectives of the Workshop through three Working Groups: (1) The Science Agenda, (2) Organization and Management, and (3) Criteria for Site Selection. Each working group had a chair and two vice chairs

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from various countries in the region. In addition, in order to expedite the preparation of a preliminary report to be distributed at the workshop, a Secretariat team was assigned to each working group to take notes and develop a working draft report from each of the working groups. After extensive discussion in the working groups, draft reports were prepared by each group.

The three Working Groups presented their reports to the full Plenary session on the morning of the final day of the Workshop for review and discussion by all participants. The report which follows is a compilation of the three working group reports as approved by the participants during the final Plenary session and statements delivered by participating countries and organizations.

This report was distributed to all participants at the conclusion of the Workshop, and, after each participant has reviewed the draft, a Final Report of the Workshop will be prepared and distributed to governments, interested international organizations and other potential participants and sponsors in preparation for the subsequent meeting.

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The Regional Scientific Agenda for Global Change Research —
A Framework for the Work of the Institute

Working Group One

A. Rationale

After several rounds of consultation and discussion, both within the Working Group on Science Agenda and within Plenary Sessions, Workshop participants agreed to formulate an illustrative, but not comprehensive, list of items for inclusion in the scientific agenda. This summary compilation reflects commonalities in the country statements and lists of important global change research interests for the region provided by each of the participating Western Hemisphere countries.

Several general guidelines became evident, including:

- a recognition of the need to integrate the agenda of social and economic aspects of global change with the natural science aspects of the programme
- a convergence of the proposed themes with the approach taken by the international scientific community as expressed in the ongoing programmes such as WCRP, IGBP and HDGEC
- the willingness to establish scientific cooperation with other international efforts in other regions where global change research centres might become operative. The IGBP-START initiative can serve as the most appropriate vehicle to foster global cooperation between regional centres for global change research.

In addition to compiling a broad list of scientific topics, the Working Group discussed certain unique and significant characteristics and requirements of the region. These issues are accordingly reflected in the listing of the scientific agenda presented in section 4B. Included in this compilation of unusual characteristics and needs of the region are:

- The importance of the hydrologic cycle, especially in large basins;
- Improvements in detection, monitoring, and research needed to better understand the role of stratospheric ozone and UV radiation as it

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affects populations living at high altitudes, high-southern latitudes, and in high radiation areas of the region;

- the study of the role of large continental-scale fluxes from the land to the oceans, especially through the great rivers;
- the need to greatly improve the resolution of GCMs as applied to the region, especially taking into consideration the Andean Cordillera;
- the need for a better parameterization of land surface processes in GCMs. Similarly, better parameterization is needed to simulate the effect of man-made land-use changes;
- development of a more complete understanding of coastal/oceanic phenomena such as ENSO, Atlantic surface temperature effects, hurricanes, and their regional and global significance;
- understanding of the role of the large biomass of the tropical forests and its soils in the carbon (C) cycle;
- understanding of the interplay of coral reefs with the carbon (C) cycle and marine pollution. The role of coral reefs as indicators of past and present global change;
- the impact of global change on the indigenous populations of the region;
- the study of the cryosphere, both at high altitude and high latitude for the interpretation of past global change. Use of cryosphere studies as a tool to improve the understanding of the processes and feedbacks of global change;
- the study of population growth, population dynamics, and consumption patterns;
- the use of biodiversity as a sensitive early warning signal of global change. Determining the scientific basis for the conservation of biodiversity; and
- determining the impact of global change processes on very diverse ecosystems.

Detailed national scientific agendas, as already adopted by the National Committees for IGBP-WCRP, as well as future modifications to these agendas as

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international collaboration is established, will be refined and defined in greater detail through the National Committees. Development of specific mechanisms and structures necessary to produce the results expected from the regional centres will have to respond to a judicious and pragmatic mix of scientific, biogeographic, and political considerations.

This proposed Western Hemisphere initiative for the Development of an Institute for Global Change Research is consistent with the objectives and structure of the IGBP Global Change System for Analysis, Research and Training (START). Therefore, discussions should begin immediately with the START standing Committee to ensure that the proposed Western Hemisphere Institute becomes a part of Global Change START. The institute would then become the first important initiative in the development of a network of regional centres with global coverage.

B. The Regional Scientific Agenda for Global Change Research

The following scientific agenda was produced by the Working Group synthesizing input from each of the participating countries. The connection of each of the agenda's four sections to existing international global change and climate programs is shown in each of four rectangular boxes displayed to the right of each section.

1. Identification, detection, background and monitoring

- Monitoring along ecotones, land use, data collection and retrieval, recent and distant past climate
- Continental and sea ice variations
- Coral Reefs
- O₃
- Biodiversity
- Public attitudes, traditional knowledge

WCRP - IGBP
WCDP (WMO)

2. Understanding mechanisms

- Atmospheric chemistry and dynamics
- Ocean dynamics, coastal zone, sea level changes, marine-biological processes
- Hurricane modelling, frequency, tracks
- ENSO phenomena, Atlantic surface temperature effects
- Climatic numerical simulation (GCM's, fine-mesh techniques [Andes-plains effects])
- Ecosystem dynamics
- Past global changes

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- O₃
- Hydrologic cycle
- Tropical forests and C cycle
- Coral reefs
- Sediment dynamics
- Natural gas emissions, waste disposal, land fills
- Forest dynamics
- Volcanoes
- Economic models including environmental variables
- Demographic processes including migration and urbanization
- Lifestyle and consumption patterns, industrial metabolism
- Sectoral policy
- Poverty and equity issues
- Conflict and national security
- Land use change

IGBP - WCRP
HDGEC

3. Impact estimation

- Sea level rise, ground water (islands)
- Climate impact on agriculture, forests, and natural ecosystems
- Differential distribution of impact
- International equity issues
- Vulnerability
- Human comfort(?) and public health

IGBP
HDGEC

4. Mitigation, adaptation

- Technological adaptation
- Technology transfer, cooperation
- Conservation
- Ecologic/economic zoning
- Energy
- Education and public policy
- Reclamation of degraded areas and reforestation
- Macroeconomic management, sectoral policy

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C. Structuring this Inter-Disciplinary Scientific Agenda in Order to Be Receptive to Broader Public Policy Needs

The Working Group considered ways in which the Institute could support and incorporate broader public policy objectives. These are through:

I. COOPERATION

- A. Encourage broad regional partnership amongst scientists and policy-makers in the Institute's mission in order to promote maximum regional cooperation;
- B. Cooperate with national, regional, and international institutions and organizations concerned with global change research;
- C. Establish close links to other global change regional research centres in order to develop the network of cooperating centres in all parts of the globe as envisioned in the IGBP START initiative.

II. LINKAGES

- A. Define global change issues in a regional context and identify regional scientific problems which might have global affects;
- B. Emphasize regionally relevant scientific parameters of global change and their interrelationship with ecological processes, and social and economic impacts.
- C. Develop the region's indigenous capacity to conduct scientific assessments that cannot be carried out by international bodies.

III. EDUCATION, TRAINING, AND DISSEMINATION OF INFORMATION

- A. Educate a new cadre of scientists capable of pursuing interdisciplinary and other broad-scale research relevant to global change.
- B. Provide training in specific areas to fulfill the regional research needs in global change.
- C. Identify ways to make policy-makers and private sector actors more aware of global change issues (whether local, regional, or

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global) in order to invoke, implement, or influence new policies and to modify or change old policies.

- D. Concentrate on providing information to appropriate policy-making bodies on local, national, regional, and international levels.
- E. Identify the effects of cultural practices on global change and investigate ways to mitigate their effects.
- F. Based on quantitative data about already detectable local or environmental changes, prepare reports easily accessible to a broader public.
- G. Establish mechanisms, such as a separate public relations function, to synthesize and disseminate information and research results as well as collect information regarding policy needs from local and regional sources.
- H. Encourage improved use of the media to make global change issues more understandable in local and national terms;

D. Functions Needed to Support the Scientific Agenda

The Working Group addressed key issues necessary to support the scientific agenda. Four broad topics were identified. These are: Data, Research, Analysis, and Education.

I. DATA

- A. Promote the collection and analysis of global change data and related information, including algorithms and research results.
- B. Provide a capability for data rescue and retrieval.
- C. Provide for the management of large data banks to allow for appropriate data archival and exchange.
- D. Guarantee a data-interchange network among the parts of the institute and national, regional, and international organizations involved in global change research.

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- E. Encourage the use of existing world standards for data collection and exchange.
- F. Establish a library in which a directory is maintained of research activities related to global change.

II. RESEARCH

- A. Provide a capability for the conduct and/or support of basic and applied research, including interdisciplinary studies of the science, economics, and social impacts of global change.
- B. Coordinate and interact with the research programs of other international and national organizations and universities involved in global change research to promote complementarity and avoid duplication of efforts.
- C. Encourage the sharing of scientific and technical resources among countries in the region, and institutions ranging from first-line, large, state-of-the-art technological institutions to other smaller institutions, including a mechanism for the exchange of scientists and staff.
- D. Provide a mechanism to ensure consistency among the countries of the region regarding technical methodologies and instrumentation needed to monitor and quantify change.
- E. Provide a mechanism to conduct research reviews.

III. ANALYSIS

- A. Identify and provide access to equipment needed for the conduct of monitoring programs.
- B. Encourage the development of regional conceptual and predictive models that parallel and enhance the regional resolution of global models.

IV. HUMAN RESOURCES DEVELOPMENT

- A. Promote the continuous exchange of ideas for cooperative global change research among countries of the region and outside the region through a variety of fora (workshops, conferences, training programs, etc.).

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- B. Maintain a record of countries' needs, scientific questions, and economic problems related to global change in an effort to encourage focused research in these areas.
 - C. Encourage policies that promote and advance the scientific agenda.
- E. Evaluation Mechanisms Which Will Assure the Excellence and Credibility of the Scientific Research Agenda

The Working Group addressed the question of how to assure excellence and credibility of the scientific research agenda. Four key points were identified. These are:

- I. Peer review of scientific projects should be conducted at more than one stage in the proposal process.
- II. Working relationships should be promoted with academic institutions and international organizations interested in participating in and supporting peer review of regional research projects;
 - A. The Institute should establish a data base of qualified individuals in universities and institutions throughout the world who are interested in acting as reviewers.
 - B. The Institute should work closely with university administration to attract young scientists as reviewers as well as established researchers and academics.
- III. Scientists associated with the Institute should be encouraged to submit project results to established scientific journals;
- IV. Every effort should be made to attract highly-qualified, independent research scientists to manage the Institute's evaluation processes.

Working Group 2

The Working Group moved immediately to address how an Institute should best be organized and also addressed questions related to its management and functions. Subsequent discussion focussed on actions needed to follow-up on

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implementing the Institute concept and identifying financial implications of proposed activities.

Working Group members agreed that the Institute should be seen as a system that would focus on multidisciplinary research related to global change and that it should build on capabilities and facilities of existing institutions. It was noted, however, that creating a new entity might ensure a truly regional programmatic focus and avoid conflicts that could arise from trying to change or modify an existing institution with ongoing research programs. The importance of reinforcing institutional capacities and, where appropriate, creating new ones, in less well endowed countries was also noted.

It was suggested that an Institute be established and organized on the basis of several principles: the use a legal framework to establish long-term commitments; use of geographical considerations in organizing the Institute's work, recognizing that fulfillment of the scientific agenda requires involvement of all sub-regions (The Bellagio Report may provide a useful guideline for the identification of sub-regions); and the use of topical scientific considerations to insure that transregional issues. Strong support was voiced for establishment of national coordinating committees for global change research which could serve as national focal points for the Institute.

The Working Group members accordingly concurred that the structure of the Institute include activities at the national, sub-regional, and regional levels. National research programs defined in response to national priorities and coordinated through national mechanisms could be associated or affiliated with the Institute and could be supported by and benefit from institute centers.

A central facility could conduct systematic observations and monitoring; provide a range of data management functions. It could also provide standardization and intercalibration of scientific instrumentation and methods; high-capacity computer services; and conduct scientific seminars and conferences.

Special emphasis was given to the need for the Institute to play an active role in training and technical assistance, especially for smaller countries which might be more vulnerable to global change and which lack some of the technological advantages of larger countries.

It was recommended that the Institute serve as a clearinghouse for information and data on global change in the region. Such information is already available in the region, but the mechanisms to share it are lacking. In this context it was recognized that it will be necessary to assure that arrangements are made for the open, free, and efficient exchange of data and information between the Institute and the countries of the region.

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It was recognized it will be necessary for the Institute to ensure that its scientific programs are developed, reviewed, approved and funded on the basis of scientific merit determined through a peer review process. This would require that the Institute's organization provide for an independent scientific advisory body.

At the same time, the Institute will require a strong and effective management structure which can assure appropriate interaction between the Institute and its financial sponsors to, among other things, ensure accountability of allocated funds.

The Working Group established a small sub-group which discussed a number of different approaches to the structure and management of the Institute, based on proposed topical and regional functions. The Working Group subsequently recommended that the Institute be governed and directed by a management structure which includes a General Assembly, a Science Advisory Committee, an Executive Board, and an Director:

- the General Assembly would meet every two years and be composed of one Governmental representative from each participating country. Such delegates should ideally represent their countries national institutions involved in the Institute's research program and have the authority to commit national resources. The Assembly would set general policy direction; and approve the general scientific program and budget, which would be developed by the Director, in consultation with the Scientific Advisory Committee, and submitted by the Executive Board; and approve the general financial policies, including funding. The Assembly would designate the members who serve on the Board.
- the Scientific Advisory Committee would consist of individuals recognized internationally for their scientific expertise in areas, including the natural, social and political sciences, within the domain of the Institute. This committee would provide regular scientific advice and review of projects and make recommendations, for final approval, to the General Assembly through the Executive Board. The Scientific Advisory Committee would also advise the Director on programme-related issues.
- the Executive Board would consist of between six and ten voting Members from the General Assembly and up to five ex-officio nonvoting Members from other relevant scientific, policy-making, or regional communities. The Board would serve as the executive body for the Assembly. The Board would define the mission and provide

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strategic policy direction and be responsible for implementing Institute policy as approved by the Assembly.. The Board would meet at least twice yearly to monitor progress and to receive and review programmatic and budget recommendations developed by the Director for submission to the General Assembly.

- the Director would be appointed by and serve at the discretion of the Executive Board. The Director would prepare programmatic and budget recommendations for submission to the General Assembly through the Executive Board. The Director would also obtain and manage resources provided to the Institute, in consultation with the Scientific Advisory Committee and the Executive Board. The Director would be responsible for day-to-day coordination and execution of the Institute's program as approved by the General Assembly. The Director would ensure that the Institute's research program complements related international programs and would assure effective interaction among the programs. (See Appendix __ for a graphic representation of the Institute's proposed governing structure.)

Working Group II set-up a small working group to propose outlines for the development and implementation of the Institute concept. Among other things, the group was to clarify the relative strength of the Director and the Board, the relationship between the regional coordinating center and sub-regional centers, and the relationship between national components and the Institute's program. Working Group 2 discussed these proposals and as a result established a subsequent sub-group to develop terms of reference (see Annex__) for an interim Working Group, to be approved by the Workshop plenary, that should function as soon as possible after the Workshop to further elaborate and follow up the proposals. The Interim Working Group should complete its work by 15 January 1992 in order to report to a second meeting of this Workshop, shortly thereafter. It is hoped that detailed proposals for establishing the Institute would be ready for ministerial approval by April/May 1992, in time for announcement at the June 1992 U.N. Conference on Environment and Development (UNCED).

Working Group II discussed at some length the financing of the Institute. It was noted that funding for the Institute's core program would probably be provided by participating countries, and funds for special projects and programs would likely be provided by multilateral institutions such as the World Bank, IDB, and nongovernmental organizations.

It was recognized that it would be important to define the funding requirements for start-up of the Institute and the method by which such funds should be provided. It was noted that consideration should be given to the levels of resources which potential host countries might be called upon to provide in

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conjunction with the establishment and operation of a central facility or sub-regional center. It was noted that local or sub-regional institutions associated with the work of the Institute would be in a position to contribute resources in kind through use of equipment and facilities, and through computer and other services. It was agreed that countries would need time to adequately estimate the scope of potential needs in both of these areas and of national contributions to meet them.

It was agreed that it would be important to establish an endowment for the Institute in order to assure a degree of stability for funding of the Institute's operations. All agreed that this concept has merit and should be explored further.

The suggestion that the Institute could perhaps be partially financed with debt conversion sparked great interest. It was pointed out that, although using debt conversion to finance operating expenses could in some instances add to inflationary pressures, using debt conversion to build up the endowment would not have the same effect.

Opinions varied on the desirability of permitting contributors to " earmark " funds. While some found this desirable and practical, others expressed concern that earmarking funds could make it difficult to attract funds for the core operating budget, which donors might not consider as interesting as special projects.

It was agreed that establishment and effective long-term operation of the Institute could have substantial financial implications for the countries of the region, as well as other potential sponsors. Therefore, it is essential that budgets for the start-up and operating costs be thoughtfully and carefully prepared. In addition, it will be important to consider the extent to which the system should fund sub-regional and/or centers. It was agreed that the proposed working group should address these issues as a matter of priority.

REPORT OF WORKING GROUP 3: CRITERIA FOR SITE SELECTION

The criteria developed by Working Group 3 to govern site selection for the sub-regional centers which, together, comprise the Institute, were based on the recommendations from the other working groups as to the scientific agenda and the overall organization of the Institute.

Taking into consideration the proposed organizational chart for the execution of the general program for global change in the Western Hemisphere, it was considered that the overall Institute administration could be located at any one of the sub-regional centers which contain the necessary facilities for the effective implementation of its functions.

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The Working Group began deliberations by considering relevant criteria developed through the IGBP/Bellagio meeting of December 1990 which compiled recommendations for the IGBP/START initiative.

Overall, it was agreed that efforts should be made to promote the affiliation and, whenever necessary, the development of centers in major areas of the region defined in terms of one or more of the following: biome, climate, geography and relevance to global change.

The number of these areas should not be predetermined; the Bellagio Report may provide a useful guideline for identification of potential sub-regions.

It was further agreed that the sub-regional centers of the Institute need not be wholly devoted to global change research but rather should contain sectors fully competent in critical aspects of global change research.

The Working Group considered that the use of existing resources as a criteria for selecting sub-regional centers be applied carefully so as not to bias the selection of sites to those that are currently most fully equipped. The Working Group agreed that the potential for subsequently obtaining resources through Institute funding and/or other means should be taken into consideration when selecting sites. This will provide means to complement established facilities. In addition, it was noted that some potential sites might be able to contribute valuable in-kind resources, including experienced personnel and/or unique location, and therefore should not be eliminated from consideration solely on the basis of their limited physical facilities. Concern was expressed that the Institute not serve to enhance already well-equipped centers at the expense of more modest research facilities.

The Working Group also agreed that sub-regional centers not be forced to adhere to or be derived from pre-determined geographic boundaries, but rather that sites be selected based on their ability to contribute to the overall objectives of the Institute. There should be no artificial limit to the number of centers in a given geographic region. When conditions require it and/or possibilities permit it, sub-centers in each of the identified regions could be established.

It was recommended that the centers should provide opportunities for education and training to improve the professional skills of local and foreign scientists, and to contribute to the development of interdisciplinary studies. Computing and library facilities will be necessary to fulfill these objectives.

The Working Group also discussed adopting a mechanism for evaluating offers for hosting sub-regional centers. It was agreed that actual site selection must not begin until the governing bodies have been established. The interim committee

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should, however, begin developing a process, drawing upon these criteria, for reviewing proposals which will later be submitted by interested countries.

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Working Group 3 recommended that the following criteria be applied in evaluating proposals for sub-regional centers of the Institute:

CRITERIA

(No priority implied)

- Ease of access to the site for visiting scientists and technicians (including transportation, immigration, etc.);
- Availability of essential logistics support (mail, reasonable telecommunications capability, housing, etc.);
- Demonstrable interest of scientists and governments in conducting global change research, and cooperating with other institutions;
- The existence of a scientific institution or "nucleus" at the site engaged, in whole or in substantive part, in active global change research;
- Presumption of long-term stability of interest and support for research objectives of the Institute;
- Ability to contribute resources to the overall Institute (through areas of specialty, expertise, location, etc.).

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**Terms of Reference for Working Group on a
Western Hemisphere Research Institute for Global Change
(revised)**

Authority

To further the work of the "Workshop for the Development of a Western Hemisphere Institute for Global Change Research," held in San Juan, Puerto Rico, 15-19 July 1991, the representatives of the participating countries established an interim Working Group to prepare more detailed proposals to be presented to a second workshop to be held in 1992.

Composition

The Working Group shall be composed of 12 members. These shall include 8 participants in the San Juan Workshop -- 2 from North America, 1 from Central America; 1 from the Caribbean; and 4 from South America (1 from northern South America; 1 from southern South America; 1 at-large; and 1 from Brazil). Four members shall be scientists designated by ICSU, taking into account nominations from the countries of the region. The Group would select its chairman from among its members. The Working Group will be supported by the services of a small secretariat, provided by the U.S.A.

Mandate

The Working Group is charged to develop options and prepare detailed proposals, including, where appropriate, alternative options, based on the deliberations and outcomes of the San Juan Workshop for the Development of a Western Hemisphere Research Institute for Global Change.

Tasks

Specifically, the Working Group is tasked to develop options and prepare proposals for:

- the organization, structure, functions and governing body for the Institute;
- operational procedures and staffing;
- incorporating the needs of the scientific agenda in the structure and operation of the Institute;
- preparation of a budget and funding strategy, including the need to include multiple funding sources (national contributions, private

foundations, and innovative sources such as "debt for science swaps"), and the possibilities for establishing an endowment fund;

- criteria for location of the centralized Institute(s) and regional institutes within a research network for global change;
- develop procedures for consideration of proposals from countries interested in hosting the Institute and components thereof; and
- framework options for a legal agreement to establish an institute, its legal identity, and its legal and institutional relationships with institutes in the research network.

Consultation

In preparing the proposals, the Working Group will consult with all interested countries in the hemisphere and with potential donors, and may seek advice from other relevant bodies, as appropriate.

Reporting

The Working Group will prepare a draft report, in English and Spanish, for circulation and comment to all interested countries in the region by 15 January 1992.

Dissolution

The Working Group will be dissolved at the high-level meeting, probably to be held in April/May 1992, when their report will be tabled.

High-Level Meeting

It is proposed that a high-level meeting be convened in April/May 1992 to consider the options, recommendations, and other results of the second Workshop.

BCC
Sumner

THE WHITE HOUSE
WASHINGTON

August 12, 1991

MEMORANDUM FOR THE PRESIDENT

FROM: D. ALLAN BROMLEY *Alan*
SUBJECT: Global Change Research Institutes

The purpose of this memo is to provide you with some information on a very successful, recent development from your April 1990 White House Conference on Science and Economics Research Related to Global Change.

Background

At the White House Conference on Science and Economics Research Related to Global Change in April 1990, you proposed the establishment of several global change research institutes to bring together the critical mass of research and capabilities to undertake global change research in three important regions of the world: the Americas, Europe/Africa, and the far East/SW Pacific.

It was decided that the first institute to be set up should be an Institute in the Western Hemisphere (the Americas) and, to carry out the detailed planning for setting up such an institute, the U.S. hosted an international workshop this past July in Puerto Rico. The workshop was sponsored by the FCCSET Committee on Earth and Environmental Sciences (CEES) Global Change Working Group.

The Workshop

Representatives of 22 countries from the region plus a number of "observer" countries and international organizations attended the workshop in San Juan, Puerto Rico, from July 15-19, 1991. All of the countries you visited during your trip to Latin America were enthusiastically represented and provided very constructive support for the institute concept.

During the workshop, the attendees prepared options/recommendations on three specific issues: (1) The science agenda, (2) Organization and management, and (3) Criteria for selection of a site or sites. A draft workshop report was produced, consisting of the three working group reports and statements delivered by participating

countries and organizations. An interim Working Group of representatives from participating countries was formed to further develop the specific options for consideration by a high-level group in April 1992.

Future Actions:

A second workshop has been planned for March 1992 with the same composition as the Puerto Rico workshop to finish the work of the Interim Group and plan for the high level meeting in April 1992 where commitments will be made on the science agenda, organization/management details, and selection of the site(s) for the institute. It is hoped that detailed proposals for establishing this first InterAmerican Institute for Global Change Research will be ready for high-level approval by April/May 1992, in time for announcement at the June 1992 UN Conference on Environment and Development (UNCED).

Comment

In my estimation, the workshop was a genuine success - scientifically, politically, and substantively. The original premise of this workshop was to have the concept development and the detailed planning accomplished by the countries in the region in order to promote a sense of ownership by those countries. This objective was, indeed, accomplished and there was a remarkable degree of cooperation among the participants.

It is significant that this first institute - as a prototype for the others proposed by the US to follow - will be a concrete and very positive indication that the US means business in our pledge to work with developing countries as well as other developed countries to address the important science questions on global change - on both a global and regional basis. In addition, it also makes clear that we are serious in our statements that we do want to help developing countries strengthen their own infrastructure, expertise, and capabilities to study and deal with global climate change and its impacts.

The successful implementation of the institute concept will strengthen our position in the continuing climate change discussions by demonstrating that your administration is, indeed, continuing to take action.

The institute concept is also a positive, new tangible contribution/proposal that the US may wish to bring to the table at UNCED.

I shall be happy to provide any additional details that might be of interest concerning this Western Hemisphere Institute.

In parallel with this we are concentrating our efforts - thus far successfully - to redirect the activities of the International Institute for Applied Systems Analysis (IIASA), that we rejoined recently, toward environmental matters so that it can provide the Europe -Africa focus for a second institute. We are also in contact with the Indonesians,

Japanese, Koreans, Australians, and New Zealanders concerning a Western Pacific rim institute. The Indonesians are particularly enthusiastic about hosting such an institute but are waiting to see how the Western Hemisphere one develops as a possible model for their efforts. Once all three of the institutes that you suggested last April are in place we can work to build strong latitudinal ties and thus have a global network to address what is truly a global issue.

The response in general has been enthusiastic and I shall keep you informed.

bcc: The Honorable John H. Sununu

on 8-13 Fred dotted

SUBJECT: Presidential letter W BCL-Security

ORIGINATOR: Nancy Maynard PHONE: X6202

DATE ORIGINATED: 8-17 DATE DUE: _____ CORR TRACKING NO.: _____

EXTERNAL COORDINATION: _____

	COMMENTS	DATE
✓ DIRECTOR		
CHIEF OF STAFF		
GENERAL COUNSEL		
EXEC. ASST.		

ACTION REQUESTED:

[illegible]

THE WHITE HOUSE
WASHINGTON

July 30, 1991

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