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From: PD, Climate Dynamics, ATM, GEO

Subject: Recommendation for funding the 1992 Global Change Summer
Institute: INDUSTRIAL ECOLOGY AND GLOBAL CHANGE

To: File

UCAR has requested \$354,588 from the SCGC/CEES agencies for a summer institute on Industrial Ecology and Global Change, to be held at Snow Mass, Colorado, July 20-31, 1992.

The summer institute would be one in a continuing series initiated by UCAR/OIES several years ago. The proposed agenda, goals, budget and list of invited participants is attached.

The proposal was reviewed by the agencies represented on the SCGC/CEES. They agree unanimously that the past summer institutes have been outstanding and recommend that this one be funded. Only one issue surfaced. OIES has been slow in getting institute reports published. OIES and its advisors are keenly aware of the problem and OIES has accelerated its publication schedule for earlier institutes for which reports have yet to be published. The director of this proposed 1992 institute, Robert Socolow, Princeton, understands that timely publication is a high priority and has committed to see that this happens.

Based on the SCGC/CEES agencies review, the importance of the subject for global change research and the excellent track record of UCAR/OIES, I recommend that the UCAR Cooperative Agreement be supplemented by \$354,588 to support the 1992 summer institute, Industrial Ecology and Global Change.

The funds are provided through contributions from the agencies of the SCGC/CEES. None of the NSF contribution of about \$55,000 will be used to cover UCAR fees.

Jay S. Fein

Jay S. Fein
8/4 , 1992

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1992 GLOBAL CHANGE INSTITUTE
Industrial Ecology and Global Change

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University Corporation for Atmospheric Research
OFFICE FOR INTERDISCIPLINARY EARTH STUDIES

1992 GLOBAL CHANGE INSTITUTE
Industrial Ecology and Global Change

Snowmass, Colorado
20 - 31 July 1992

Proposed Program

OVERALL PLAN

- Part I: Tutorial Papers, Round Tables, and Plenary Discussion
Part II: Parallel Working Group Sessions
Part III: Rapporteur Reports at Plenary Session

PART I (Monday through Thursday of First Week):

DAY ONE:

What are the patterns and prospects of global industrialization?

Morning

- Talk No. 1: A 300-year view of industrialization as the transformation of the global environment
Talk No. 2: Industrialization as a historical phenomenon
Talk No. 3: Data bases on global industrial activity

Afternoon

- Roundtable 1 Dynamics of industrialization
Roundtable 2 Dynamics of economic development

DAY TWO:

What is known about global environmental vulnerability to human activity?

Morning

- Talk No. 1: Changing perceptions of vulnerability
- Talk No. 2: The atmosphere as a vulnerable environmental system
- Talk No. 3: The hydrosphere as a vulnerable environmental system

Afternoon

- Talk No. 4: The lithosphere as a vulnerable environmental system
- Talk No. 5: Data bases on environmental systems
- Roundtable 1 The limitations of media-specific perspectives on environmental vulnerability

DAY THREE:

How might industrial activity be reconfigured in response to a deeper understanding of the major biogeochemical cycles in which this activity is embedded?

Morning

- Talk No. 1: An overview of industrial ecology
- Talk No. 2: Reconfigurations of industrial activity in response to insights into the carbon cycle (energy efficiency, renewables, methane management)

Afternoon

- Talk No. 3: Reconfigurations of industrial activity in response to insights into the nitrogen cycle (combustion, agriculture, the nylon story)
- Talk No. 4: Reconfigurations of industrial activity in response to insights into sulfur, phosphorus, and other mineral cycles (limiting nutrients in aquatic systems, fate of sulfur in fuels)

DAY FOUR:

How might industrial activity be reconfigured in response to a deeper understanding of associated exotic disturbances of the environment?

Morning

- Talk No. 1: The management of metals in the industrial system
- Talk No. 2: The management of "toxic" organics in the industrial system
- Talk No. 3: The management of industrial activity bearing on the chemistry of the stratosphere

Afternoon

- Roundtable 1 Case histories from current and pending industrial practices in leading corporations

PART II (Friday, through Thursday of Second Week):

WORKING GROUP A: Interactions of Human Activity with Basic Environmental Cycles

Goal: To bring together those who, working at various spatial scales, seek to clarify the interactions of human activity with the carbon, nitrogen, phosphorus, sulfur, and other mineral cycles and to explore reconfigurations of industrial activity in response to these insights. Specifically included are concerns for energy efficiency, renewable energy, methane management, nitrogen and sulfur management in combustion, and nitrogen and phosphorus management in modern agriculture.

WORKING GROUP B: **Human Activity In The Form Of Exotic Disturbance Of
The Environment**

Goal: To integrate the insights of groups working at the factory level, the industry-wide level, the regional (e.g., river-basin) level, and the global level – all seeking to understand the interaction of industrial activity with the environment, when the industrial activity takes the form of 1) processing of materials, such as metals, that have limited roles in basic biogeochemical cycles, or 2) introducing emissions, such as "toxic" organics, that are relatively absent in the natural environment.

WORKING GROUP C: **Dynamics of Industrial Development and Their
Environmental Implications**

Goal: To integrate global change concerns into a currently vigorous enterprise describing the dynamics of industrialization and economic development—an enterprise that, for the most part, does not use a framework where environmental issues appear prominently: environment tends to be neither a driver nor a constraint. An improved framework will be sought, that can integrate the insights of environmental scientists, engineers exploring environmentally driven alternative futures, and modelers of industrialization and economic development.

PART III (Friday of Second Week):

Rapporteur Reports at Plenary Session

University Corporation for Atmospheric Research
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1992 GLOBAL CHANGE INSTITUTE
Industrial Ecology and Global Change

General Description

GOAL

To deepen our understanding of "industrial ecology," a relatively new phrase for a perspective that emphasizes the transformations of the environment that accompany industrial activity and the reconfigurations of industrial activity in response to knowledge of environmental interactions.

METHOD

The 1992 Global Change Institute will bring about some of the first organized discussions between 1) those currently engaged in charting a course for industry that is responsive to environmental insights, and 2) those engaged in the ongoing effort to clarify the impacts of human activity on the environment. Leaders from industry, from the environmental sciences, from the social sciences, and from the specialty of technology assessment are being invited.

FORMAT

PART I. The initial four days of the GCI will be devoted to the presentation and discussion of tutorial, review papers that will be written and mailed to participants in advance. Three purposes will be served: (1) to acquaint participants with the front-line knowledge and experience in key aspects of Industrial Ecology, as seen from the perspective of different disciplines; (2) to lay the common intellectual foundation on which the working discussions in Part II will be based; and (3) to get acquainted.

PART II. The last day of the first week, and the full second week will be devoted to informal, working discussions in three organized working groups, with the opportunity for all participants to participate to the extent possible in each of the three. The themes to be discussed in the three groups are defined below. A final plenary session will be held on Friday, 31 July, at which working group reports will be shared. A moderator and rapporteur will be designated, in advance, for each working group.

Themes of the three working groups:

Working Group A "Interactions of Human Activity with Basic Environmental Cycles"

Goal: To bring together those who, working at various spatial scales, seek to clarify the interactions of human activity with the carbon, nitrogen, phosphorus, sulfur, and other mineral cycles and to explore reconfigurations of industrial activity in response to these insights. Specifically included are concerns for energy efficiency, renewable energy, methane management, nitrogen and sulfur management in combustion, and nitrogen and phosphorus management in modern agriculture.

Working Group B "Human Activity in the form of Exotic Disturbances of the Environment."

Goal: To integrate the insights of groups working at the factory level, the industry-wide level, the regional (e.g. river-basin) level, and the global level -- all seeking to understand the interaction of industrial activity with the environment, when the industrial activity takes the form of 1) processing of materials, such as metals, that have limited roles in basic biogeochemical cycles, or 2) introducing emissions, such as "toxic" organics, that are relatively absent in the natural environment.

Working Group C "Dynamics of Industrial Development and their Environmental Implications"

Goal: To integrate global change concerns into a currently vigorous enterprise describing the dynamics of industrialization and economic development -- an enterprise that, for the most part, does not use a framework where environmental issues appear prominently: environment tends to be neither a driver nor a constraint. An improved framework will be sought, that can integrate the insights of environmental scientists, engineers exploring environmentally driven alternative futures, and modelers of industrialization and economic development.

PRODUCT

The GCI will generate a printed volume, to be produced and distributed within one year by OIES, that includes the edited tutorial lectures and summaries of the conclusions of each discussion group. The book will be distributed to interested scientists throughout the world.

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Industrial Ecology and Global Change

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