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ORNL
FOREIGN TRIP REPORT

ORNL/FTR-3841

DATE: December 18, 1990

SUBJECT: Report of Foreign Travel of Stephen F. Rayner, Energy Division

TO: Alvin W. Trivelpiece

FROM: Steve Rayner

PURPOSE: To attend meeting of the Standing Committee and Scientific Symposium on Human Dimensions of Global Environmental Change of the International Social Science Council (ICCB).

SITES VISITED: 11/25/1990 Committee Meeting Palma, Mallorca, Spain
11/26-27/1990 Symposium Palma, Mallorca, Spain

ABSTRACT: Traveler attended the meeting of the Standing Committee on the Human Dimensions of Global Environmental Change of the International Social Science Council (ISSC) and the Scientific Symposium organized by the Standing Committee. The purpose of the meeting and symposium was to discuss the Draft Framework and the Workplan of the Standing Committee prior to its presentation to the 1990 Congress of the ISSC on November 28-30, 1990. The meetings indicate that ORNL Global Environmental Studies Center is on the international leading edge of human dimensions research, except in the area of human dimensions data systems. This weakness could be rectified by close collaboration with the efforts of the Consortium for International Earth Science Information Network (CIESIN) in Michigan.

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MASTER

**Meeting of International Social Science Research Council Standing Committee
on Human Dimensions of Global Change November 25, 1990**

The ISSC is the social science counterpart of the International Council of Scientific Unions (ICSU) whose Secretary General also participated. Two scientific unions belong both to ISSC and ICSU. These are the International Geographical Union (IGU) and the International Union of Psychological Science (IUPS). A third ISSC Union, the International Union of Anthropological and Ethnological Sciences (IUAES) is currently applying to ICSU as well. Geographical and ethnological sciences currently play a major role in developing interdisciplinary programs of ORNL's Global Environmental Studies Center.

The ISSC Standing Committee on Human Dimensions of Global Environmental Change (Appendix A) was supplemented on this occasion by several invited guests, including the President of the ISSC, Dr. Candido Mendes; the Secretary General of the ISSC, Dr. Luis Ramallo; and the Vice-Rector of the UN University (UNU), Dr. Roland Fuchs. U.S. guests included Dr. Roberta Miller of NSF, Dr. Richard Rockwell of the U.S. Social Science Research Council, Dr. Sam Barnes of CIESIN, and the traveler.

The *Framework for Research* (ISBN 92-9107-001-7), drafted by the Chair, Dr. Harold Jacobson, and Secretary, Dr. Martin Price, of the Standing Committee was submitted for discussion. The document runs just over 70 pages—copies are available from the traveler. The first half of the document characterizes global environmental change in relation to anthropogenic drivers and human impacts. The second half outlines a research program based on 7 topics, all of which are already the subject of recent or current projects of ORNL Global Environmental Studies Center.

1. Social dimensions of resource use
2. Perception and assessment of global environmental conditions and change
3. Impacts of local, national, and international social, economic, and political structures and institutions
4. Land use
5. Energy production and consumption
6. Industrial growth
7. Environmental security and sustainable development.

The framework was endorsed by the committee for recommendation to the Symposium and to the full Congress of the ISSC scheduled for later in the week. Dr. Ramallo indicated that the Government of Spain is to offer full secretariat facilities to the ISSC for its global change program.

Following publication of the framework document, a Work Program (see Appendix B for Summary) was prepared for the establishment of International Working Groups on each of these topics. The Work Program also adds a further dimension to the Research Framework under the general rubric of a Data Program. This program consists of six working groups on:

1. Survey research Data
2. Economic Data
3. Demographic Data
4. Remote Sensing

5. Social/Behavioral In-Field Data
6. Data Information Systems and Technologies.

These working groups have been established and funded by the Consortium for International Earth Science information Network (CIESIN). The traveler, who is a member of the Proposal Review Panel for CIESIN, will initiate discussions for cooperation with ORNL's global human systems data efforts by the end of this year. The only other working group to have been established prior to the ISSC Congress is that on Land Cover/Land Use Change which is to be a joint effort with the International Geosphere Biosphere Program (IGBP).

The remaining working groups have yet to be established. However, it seems that UNU is seeking to take the leading role on the topic of industrial growth. The traveler and Dr. Udo Simonis of the Science Center, Berlin (WZB) were invited by the Standing Committee jointly to establish a Working Group on Economic and Behavioral Aspects of Energy Conversion.

**ISSC Scientific Symposium on Human Dimensions of Global Change
November 26-27, 1990**

The keynote speakers were Dr. Roberta Miller, who heads the Division of Economic and Social Sciences at NSF and Dr. J.W.M. La Riviere of ICSU. Both emphasized the importance of interdisciplinary research involving both natural and social science. However, neither speaker dealt adequately with the distinction between interdisciplinary research (where research problems and projects are jointly defined) and multidisciplinary research (where other disciplines are invited to contribute to the solution of a problem essentially defined by a disciplinary group). The value of such reflexive insights into the conduct of science for the global environment, as can be offered by the sociology of science, was not well understood by either speaker. However, later in the program, Richard Rockwell (Coordinator SSRC Global Environmental Change Program) announced SSRC's intention to research issues of constructing interdisciplinary research.

La Riviere properly cautioned the participants against interdisciplinary research for its own sake as there are many aspects of global environmental research amenable to disciplinary science.

Interestingly, La Riviere presented his own "affinity scale" for the natural and social sciences.

High affinity with natural science

Geography
Anthropology
Demography
History
Descriptive Sociology and Economics

Medium affinity with natural science

Legal Studies
Administrative Science
Political Science
Psychology

Low affinity with natural science

Business Administration

Peace research

Prescriptive Sociology and Economics

Communication Science

The distinction between two aspects of sociology and economics was particularly interesting as many policy makers often seem to regard economics of any sort as more "scientific" than geography, anthropology, or history. Evidently, not all scientists share that view.

La Riviere also called for collaborative research by ISSC and ICSU on 6 topics in addition to the proposed Working Group on Land Use.

1. Industrial metabolism
2. Environmental ethics
3. Retrofitting UN institutions for environmental protection/security
4. Global environmental education
5. Water and food security
6. Analysis of conventions and implementation

(Items 1 and 6 are subjects of current work at ORNL). Arild Underall of the European Science Foundation (substituting for the Chairman of the ESF Steering Committee, Timothy O'Riordan) later emphasized the topics of international collaboration and policy instruments (item 6 in La Riviere's list) as central foci of the ESF effort on global environmental change. ORNL already has collaborated with O'Riordan in these areas and I believe that the Europeans would welcome more scientific interaction with us.

The keynote addresses prompted a number of interventions on the Research framework and Work Program.

Michael Redclift (Coordinator of the UK Economic and Social Research Council Global Program) suggested a need for two additional working groups on training and on technology transfer.

Gary Yohe (Wesleyan University) questioned the emphasis on forcing factors to the virtual exclusion of adaptation.

Roland Fuchs (UNU) considered the current emphasis on the Data Program to be putting the cart before the horse.

Hayward Alker (Vice-President, International Studies Association) suggested that ISSC and ICSU should collaborate to put an historian or anthropologist on every ISSC and ICSU working group to monitor its deliberations, especially its treatment of uncertainty, and thus enhance societal learning about understanding global change.

Other presentations outlined the arrangement for a number of national research programs on human dimensions of global change. There is an evident need to coordinate these programs to make full use of diversity and eliminate redundancy.

Conclusions

The trip was most useful in these respects:

1. It enabled the traveler to communicate the achievements of ORNL's program on Policy, Energy, and Human Systems Analysis within the Global Environmental Studies Center to an extensive international audience that currently is shaping the international research agenda in human dimensions of global change. Traveler's participation confirmed recognition of ORNL as a leading center of research in the human dimensions of global change.
2. The invitation to establish the proposed Working Group on Energy Conversion strengthens ORNL's role in this issue and enhances the Laboratory's ability to obtain early benefit from world wide research.
3. The trip highlighted the opportunity for collaboration between ORNL and CIESIN to establish an effective human dimensions of global change data system.
4. It enabled the traveler (as Deputy Director of the Global Environmental Studies Center with primary responsibility for human systems research) to evaluate the state of ORNL's programs relative to the international effort and to the national efforts of several European countries. Our program appears to be right on target and, with the exception of human dimensions data systems, much further advanced than elsewhere. *However, funding for ORNL human systems research is highly concentrated. If we are to develop a stable program for human dimensions of global change and retain our comparative advantage, ORNL must diversity its funding base for this work.*

APPENDIX A

ISSC STANDING COMMITTEE ON HUMAN DECISION OF GLOBAL CHANGE

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APPENDIX B

INTERNATIONAL SOCIAL SCIENCE COUNCIL HUMAN DIMENSIONS OF GLOBAL ENVIRONMENTAL CHANGE WORK PROGRAM, 1991-1992

Summary

This document sets forth the activities that the International Social Science Council (ISSC) will sponsor during 1991 and 1992 to promote research on the human dimensions of global environmental change. The *Framework for Research on the Human Dimensions of Global Environmental Change* gives the broad orientation and states the aims of ISSC's work.

To foster international and interdisciplinary coordination ISSC will assist member unions in their efforts to promote research on the human dimensions of global environmental change and will provide information on related national and international activities. ISSC itself will also establish working groups to promote standardization in measurement, comparability of research design, and integration of the full range of appropriate social and physical science disciplines in research.

During 1991 and 1992, ISSC will sponsor three types of activities: data development; research on land cover and land use change; and research design and development.

(1) Data Development. Although relevant data already exist for research on the human dimensions of global environmental change, these data have not been systematically inventoried, nor are they easily accessible. In addition, new data will be required to fill gaps in existing data and to cover issues and topics that have not been covered. Comparable measures for regional and global data must be devised. There are new technologies for obtaining and handling data. ISSC will sponsor working groups on all of these topics.

(2) Research of Land Cover/Land Use Change. Change in land cover/land use is a crucially important issue in global change. Since, physical, biological, and social systems interact in determining changes in land cover/land use, this topic must be studied jointly by natural and social scientists. ISSC in collaboration with the International Geosphere-Biosphere Programme (IGBP) will establish a working group that will develop a core project on land cover/land use change.

(3) Research Design and Development. Beyond calling for studies of land use, the *Framework for Research on the Human Dimensions of Global Environmental Change* identifies six other areas where research will be essential to understanding global change. These are: (a) the Social Dimensions of Resource Use; (b) Perception and Assessment of Global Environmental Conditions and Changes; (c) the Impacts of Local, National, and International Social, Economic and Political Structures and Institutions; (d) Energy Production and Consumption; (e) Industrial Growth; and (f) Environmental Security and Sustainable Development. ISSC will establish working groups on each of these topics.

APPENDIX C

ITINERARY

11/23-11/24/90	Travel from Oak Ridge, Tennessee to Palma, Mallorca, Spain
11/25-11/27/90	Committee meeting and Symposium in Palma, Mallorca, Spain
11/28/90	Travel from Mallorca, Spain to Oak Ridge, Tennessee

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