

IGBP 1992 - REPORT ON RECENT DEVELOPMENTS OF IGBP

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Introduction

In a brief report of this kind, it is not possible even to outline all the multifaceted complexities of such a major programme as the IGBP. I shall make no such attempt. Instead I shall be content to identify a few aspects which are judged to be particularly significant. Unfortunately this decision leads to the result that some important projects will not be dealt with at all. A notable omission in this report will be any consideration of the START initiative, which will be extensively dealt with separately by Thomas Rosswall.

Many aspects of the IGBP have moved from the planning to the operational phase. However few have yet been operational for long enough that substantive results have yet been announced. This situation is expected to change rapidly, so that even by the time of the third meeting of the Scientific Advisory Committee, to be held in Ensenada, Mexico in January, 1993, new results will be presented in reports from some of the Core Projects.

As the Programme matures, its boundaries are becoming more clearly defined, and its relations to other Programmes clarified. Of the latter, particularly important are relations with the World Climate Research Programme(WCRP) of ICSU, WMO and IOC/UNESCO, and the Human Dimensions of Global Environmental Change Programme(HDP) of the International Social Sciences Council.

A notable policy decision, which originated with GCTE but has since been adopted for the whole of the IGBP, is to suggest a triage:

- a. Core Research
- b. Regional/National Research
- c. Relevant Research,

which are listed in decreasing order for the amount of attention they will receive from central offices for help in planning and in obtaining funds.

Relations with the WCRP

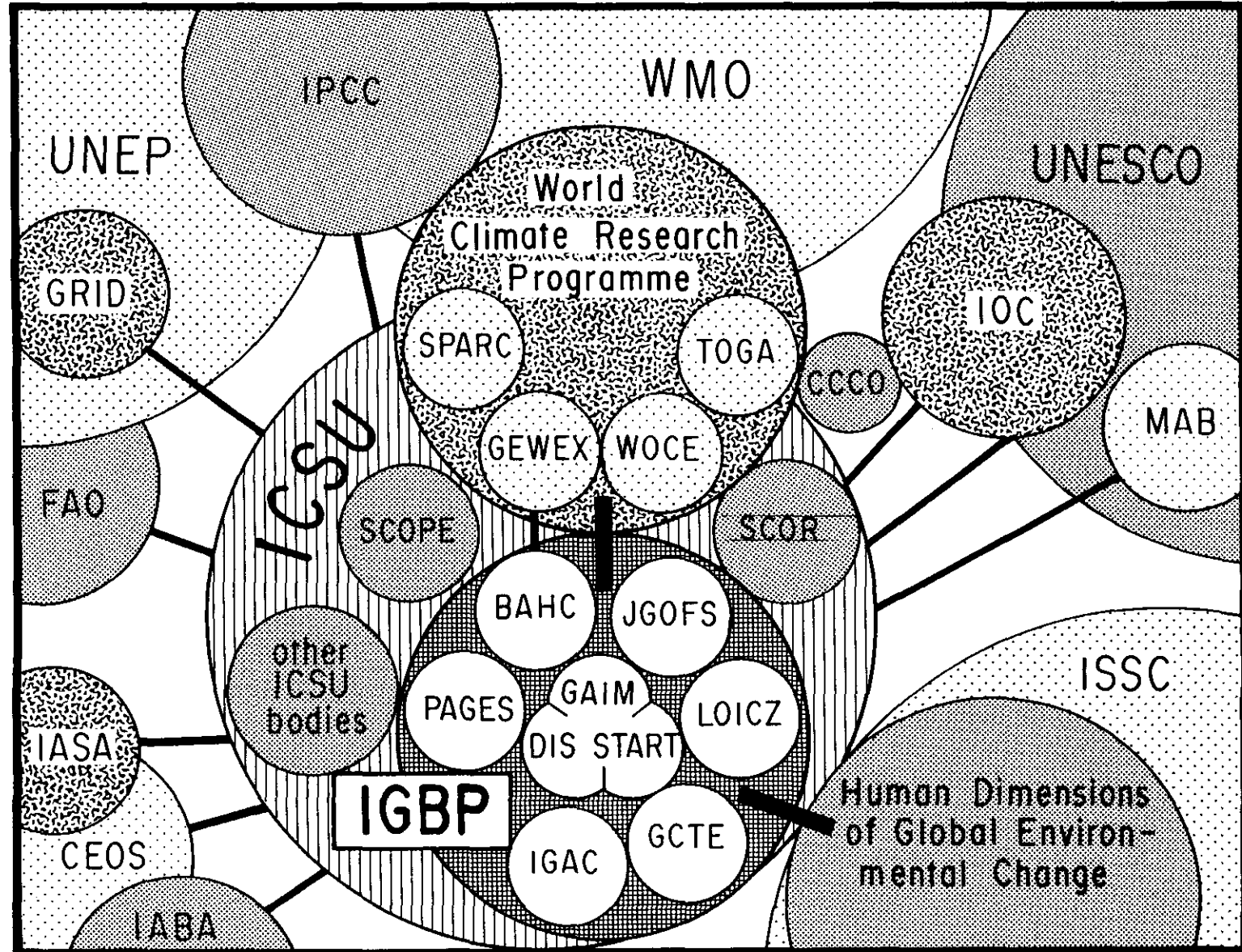
The arrangement whereby the Chairman of the Joint Scientific Committee of the WCRP sits as a full participant in meetings of the Scientific Committee of the IGBP, and vice-versa, is working well and is providing effective liaison between the two Programmes.

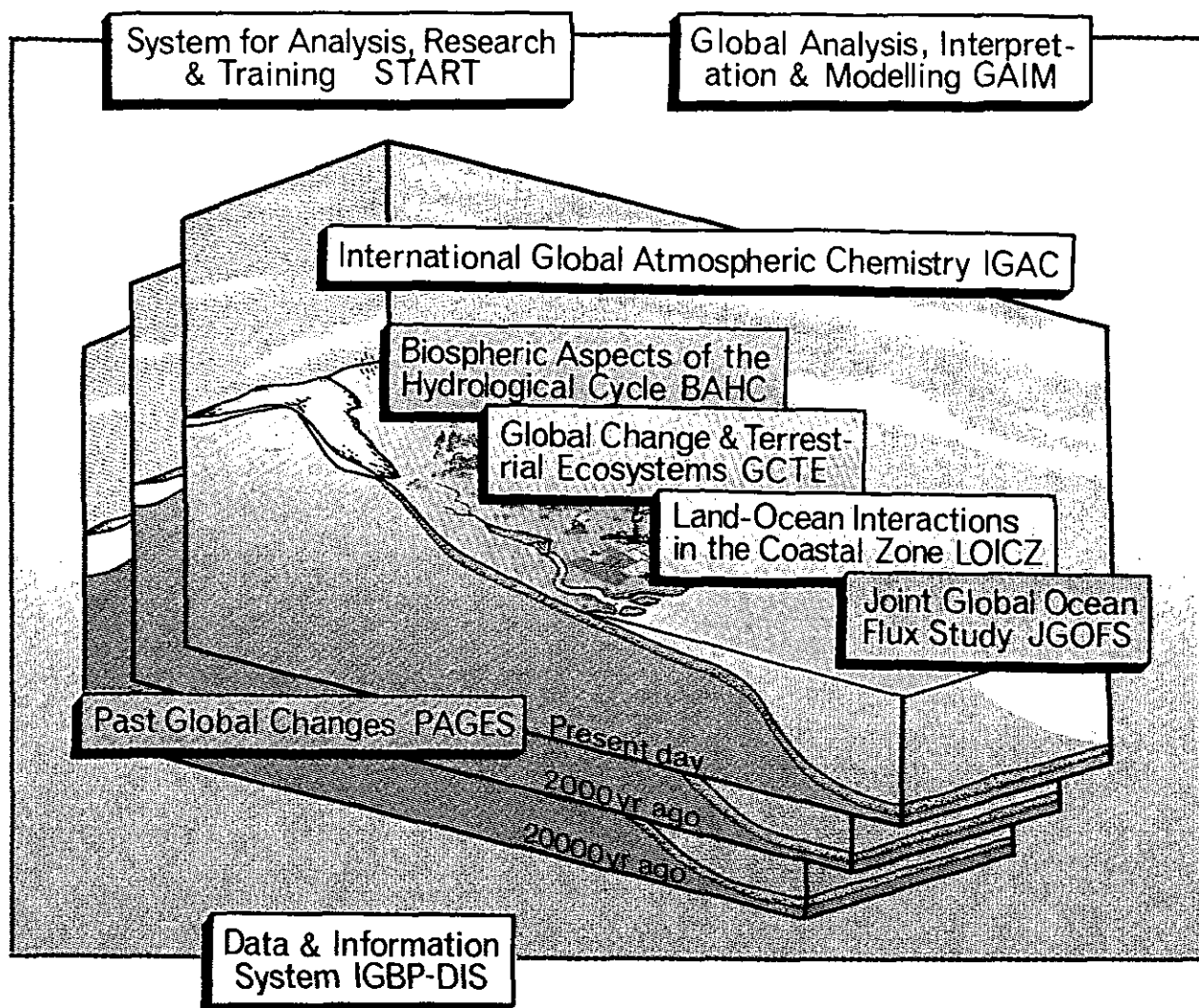
The rather difficult problem of establishing the boundary between IGBP's BAHC (Biospheric Aspects of the Hydrological Cycle) and WCRP's GEWEX (Global Energy and Water Experiment) is being resolved. BAHC has four foci:

- 1. Development, testing and validation of 1-dimensional soil-vegetation-atmosphere transfer (SVAT) models.
- 2. Regional-scale studies of land surface properties and fluxes: experiments, interpretation and modelling.
- 3. Diversity of biosphere-hydrosphere interactions: temporal and spatial variability.
- 4. The Weather Generator project.

A joint WCRP-IGBP working group will coordinate the planning of large-scale field experiments that are of interest to GEWEX, BAHC, GCTE, and IGAC.

The SC-IGBP has decided not to accept the proposed Stratosphere-Troposphere Interactions with the Biosphere (STIB) Project as an IGBP Core Project, concluding that the biological connections were too tenuous. However four components have been accepted for further development within the WCRP: the role of the stratosphere in the climate system; the study of ozone depletion and related chemical processes in the upper atmosphere; the monitoring of global change occurring in the stratosphere; and the modelling and monitoring of UV-B penetration throughout the atmosphere. Such studies will provide the basis for a new WCRP project "Stratospheric Processes and their role in Climate" (SPARC). GCTE and JGOFS will assist in making links between SPARC and research groups considering of the biological effects of changes in UV-B flux.





An ad hoc Working Group of the IGBP and SCOR on the potential IGBP Core Project "Global Ocean Euphotic Zone Study" (GOEZO) has recently reported to the SC-IGBP, giving its views on the possible structure and emphasis of this project (which may be re-named). Since the project would involve study of the close interplay of the physics and the biology in the upper ocean, the SC-IGBP decided to explore with the JSC-WCRP the possibility of co-sponsorship of the planning of GOEZO project, which in any case would not commence its field phase until the completion of the field phase of JGOFS.

Relations with the HDP

There are cultural differences between Social Scientists and Natural Scientists which are almost as marked as those between, say, Japanese and European people. However in dealing with environmental change it is essential that they work together. To this end the Chairman of HDP is a member of the SC-IGBP, and joint actions are being taken.

The first of these actions was to develop a joint Core Project on Land-Use/Land-cover Change. A Core Project Planning Committee will be set up. It will be charged with generating a Science Plan which will:

- address the needs of relevant IGBP core projects.
- contribute to the projects and activities of relevant projects and activities of the HDP.
- define the data needs of the project.

Already some work has been undertaken, and some of the problems have been identified. Data are of considerable concern. Most Social Science data are collected according to political boundaries, which usually do not coincide well with the ecological boundaries which are most suitable for the work of natural scientists. There are even important uncertainties with respect to what ought to be fully comparable factual data. For example in a case study of deforestation in Brazil reported to the 5th Meeting of the SC-IGBP it was pointed out that estimates of the current deforestation rate differ by a factor of about 4. Members of the SC were shown analyses performed at the University of New Hampshire of Landsat images of the area. They might resolve these differences, in that they reveal the deforestation to be very dendritic (even fractal) in nature, so that the apparent amount depends upon the scale at which it is examined.

Categories of Research - Triage

Following an initiative of the Scientific Steering Committee (SSC) for GCTE, SC-IGBP recommends a policy of identifying categories of research: Core Research, Regional/National Research and Relevant Research.

Core Research Projects

These can be initiated directly by the SSC, adopted by the SSC, or be national or regional projects which have been accepted by the SSC on the basis that they provide components which, when combined with projects from other national IGBP programmes, form a large-scale, integrated research project which is international in scope. These projects are eligible for assistance in obtaining funds from national and international agencies. They will maintain close communication with the relevant Core Project Office.

Regional/National Research Projects

These projects arise from national IGBP committees or other national and regional groups of research organizations. Although not part of a Core Research Programme, they will be an important part in the overall effort because they will provide a critical link between global scale Core Research and the national and regional scales which are of concern to individual countries and regions.

Some of these projects may be proposed to the appropriate SSC as candidates to become parts of the Core Research Programme.

Relevant Research Projects

These are smaller projects initiated by individual investigators or institutions. They will add incrementally through case studies and locally specific research to the broad knowledge that underpins the overall effort. Some of these projects may be potential parts of a Core Research Programme, but should be first considered by the appropriate national IGBP committee before being submitted to an SSC.

Decisions on other Core Projects

GAIM

At the 4th SC-IGBP session it was decided that it should be recognized that Global Analysis, Interpretation and Modelling (GAIM) was unlike the Core Projects which had been established by the SC, but had an overarching responsibility. The GAIM Core Project Planning Committee was changed into a Task Force, charged with developing GAIM activities in close liaison with Core Projects and the SC-IGBP. It was nevertheless noted

that GAIM is not (in the language of set theory) the intersection of the Core Projects and, in fact, does not even lie in the union of all Core Projects. It has its own contribution.

A "near-final draft" of the GAIM action plan for 1992-1995 was presented to the 5th SC-IGBP session and accepted in principle.

LOICZ

The proposed Core Project on Land-Ocean Interactions in the Coastal Zone (LOICZ) was extensively discussed during both the 4th and the 5th sessions of the SC. Draft Science Plans were submitted, and it was finally decided to accept LOICZ as a Core Project. The invitation of the Netherlands to host the Core Project Office was accepted.

As a final note: The SC-IGBP greatly appreciates the efforts of Japanese authorities in hosting this Asian Symposium, as well as the efforts of all participants in advancing the cause of the International Geosphere-Biosphere Programme. They will make important contributions to understanding the nature of this complex, interactive world which we inhabit, and to the task of sustainable development which will keep it habitable for our descendants.