# Prospectus

for the

# International Continental Scientific Drilling Program

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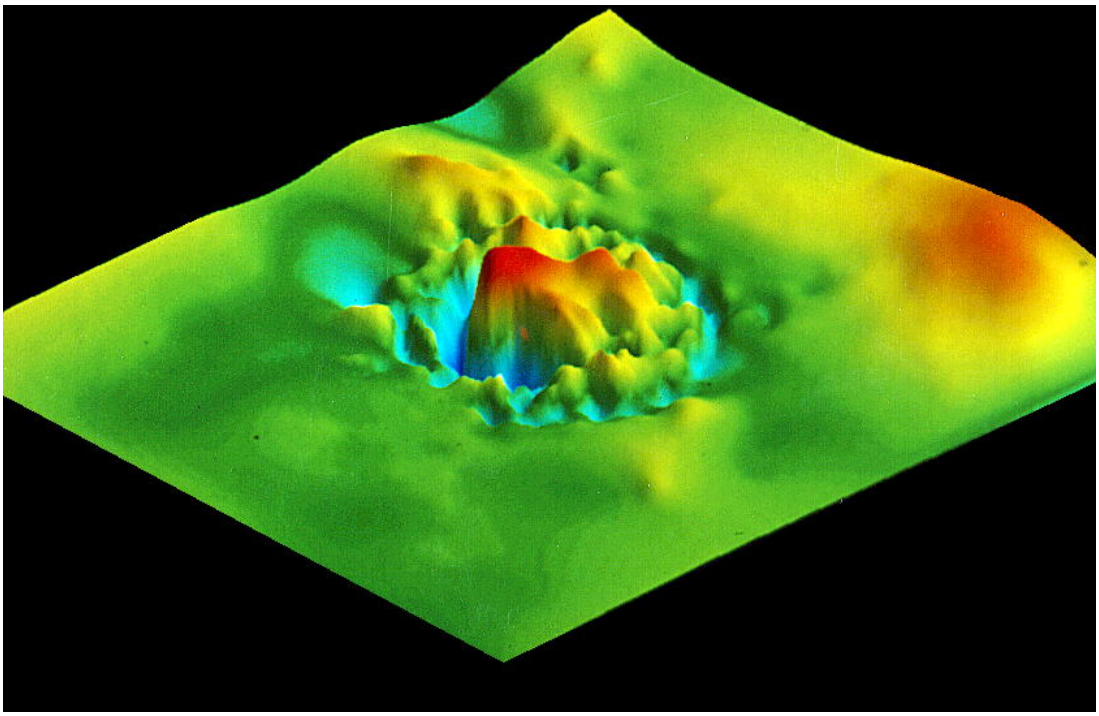
ICDP



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Frontispiece:
Gravity signature of the Chicxulub impact structure at the edge of the Yucatan Peninsula, Mexico (courtesy of V.L. Sharpton).

# I. Goals

Human activities, especially through utilization of the hydrocarbon and mineral resources of the Earth's crust are having significant impacts on the global environment. Furthermore, with the increasing global population and the increasing trend to urbanization, notably in coastal areas around the Pacific Ocean, there is also greatly increased risk to life and property from earthquake and volcanic activity as well as from other natural hazards. Knowledge of the composition, structure and evolution of the Earth's crust and of processes which continue to modify it, is, therefore, becoming increasingly important for the wise management of the Earth's resources and environment, consistent with the principles of sustainable development.

Key issues which can be addressed with this knowledge are:

- The study of earthquakes and mitigation of their adverse effects.
- The wise use of and exploration for energy, mineral and water resources.
- The evaluation of the relative importance of anthropogenic versus natural forces in controlling climatic and environmental change.
- The safe disposal and monitoring of toxic and nuclear wastes.
- The nature of critical interaction between the biosphere and the Earth's crust.
- The nature of the changing parameters that control the evolution and extinction of species.

In the light of the societal importance of these issues, and the capability of scientific drilling to make a quantum leap in the scientific understanding, this proposal seeks support for an International Continental Scientific Drilling Program (ICDP) as an essential component of responsible management strategies for the resources and environment of the dynamic Earth.

# II. Introduction

There has long been ad hoc bilateral international co-operation in a number of scientific continental drilling projects. In November 1992 the Megascience Forum of the Organization for Economic Cooperation and Development (OECD) reviewed the whole area of international cooperation in drilling both in the oceans and on the continents. One result of the review was strong encouragement for the International Geoscientific Community to move forwards with a more formal multilateral program. Because of the highly successful German Continental Deep Drilling Program KTB, Germany was asked to take a lead role and to organize an international meeting to examine the scientific justification and management needs for a multilateral international program.

This meeting was held from August 30 to September 1, 1993, in Potsdam, Germany, and was hosted by the GeoForschungsZentrum Potsdam (GFZ), a governmentally-financed major new Earth Science Research Institution. The meeting was carried out under the auspices of the Coordinating Committee 4 ‚Continental Drilling' (CC-4) of the International Lithosphere Program (ILP) and strongly endorsed by the International Union of Geodesy and Geophysics (IUGG) and the International Union of Geological Sciences (IUGS) whose presidents participated in the conference. The scientific themes of the meeting were intended to be as comprehensive as possible, attempting to cover a broad spectrum of contemporary earth sciences in order to discuss how scientific drilling could complement ongoing geoscientifc studies and make it possible to address fundamental, unresolved questions critically relevant to both societal needs and an improved understanding of the earth and lithosphere. These

questions were discussed in detail by 250 experts from 28 countries present at the meeting and the chairs of the varied thematic session were primarily responsible for preparation of the different thematic sections and the preparation of a report under the title ‚Scientific Rationale for Establishment of an International Program of Continental Scientific Drilling'. This report has, meanwhile, been published (editors: M. Zoback and R. Emmermann, Potsdam 1994) and is available on request.

Following the initial three days in Potsdam, science managers from 15 participating countries met at Windischeschenbach, the site of the German Continental Deep Drilling Program KTB, to consider formally the establishment of an ICDP. The Communiqué issued at the meeting stressed the following major points:

1. There is an essential Role for Continental Scientific Drilling in the Solid Earth Sciences.
2. Full realization of that Role requires a comprehensive international program.
3. It is timely to grasp the opportunity to embark on an International Continental Scientific Drilling Program.

The science managers nominated a Preparatory Group which got the mandate to draft a Prospectus for the Structure, Operation and Funding of an International Continental Scientific Drilling Program ICDP by addressing issues such as:

- an overall structure for management of the program.
- the sponsorship of the program.
- mechanisms for the management of projects of various dimensions.
- design of program structure.
- criteria for selection of projects.
- mechanisms for promoting international participation

Based on this Prospectus, a Memorandum of Understanding (MOU) was developed that would be acceptable as a multilateral mechanism for the management and operation of an ICDP.

In March 1994 an agreement, Cooperation in Research in Geosciences' between the National Science Foundation (NSF) of the United States of America and the German Federal Ministry for Education, Science, Research and Technology (BMBF) was signed. In October 1994 both partners indicated their intend to implement an ICDP by a respective ‚Letter of Intent'.

The Memorandum of Understanding was initialed in February 1995 by the GeoForschungsZentrum Potsdam (GFZ) and the National Science Foundation (NSF) and the program is planned to start in 1996.

# III. Scientific Rationale and Mission of the ICDP

We live in a geologically complex world where Earth scientists are faced with tremendous challenges. Earth sciences must play a key role in satisfying society´s ever-increasing dependence on natural resources, in meeting its needs to remediate existing environmental damage, in learning how to sustain human progress without causing further environmental degradation and in learning how to reduce society´s ever-increasing vulnerability to natural hazards.

A better understanding of the processes acting in the Earth's lithosphere and their interaction with the atmosphere, the biosphere and the hydrosphere is therefore essential for the wise management of the Earth's environment and resources. This knowledge is actually indispensible for the integrated management strategies for Sustainable Development as outlined in Agenda 21 of the United Nations Conference on Environment and Development in Rio de Janeiro in 1993.

The geoscientific community has become increasingly aware of its responsibilities to provide decision-makers with this fundamental knowledge.

Great advances have been made in recent years in the conceptual understanding of the evolution of the Earth's continental crust; and modern techniques have also allowed great advances in geophysical and geological mapping of large areas. As a result it has become clear over the last decade that scientific drilling is a critical tool in our understanding of Earth processes and structure. Drilling can provide unique opportunities for the direct study of Earth processes and it also critically tests geological models developed on the basis of surface observations and remote sensing. Results obtained from drilling projects at critical sites can be applied to other areas worldwide. It is, therefore, believed that international co-operation in continental scientific drilling is an essential component for a responsible management strategy for the Earth's natural resources and environment.

These general considerations lead to the following mission of the ICDP:

"Through the unique capacities of scientific drilling to provide exact, fundamental and globally significant knowledge of the composition, structure and processes of the Earth's crust" with particular focus on research themes such as:

- The physical and chemical processes responsible for earthquakes and volcanic eruptions, and optimal Methods for mitigating their effects.
- The manner in which Earth's climate has changed in the recent past and the reasons for such changes.
- The effects of major impacts on climate and mass extinctions.
- The nature of the deep biosphere and its relation to geologic processes such as hydrocarbon maturation, ore deposition and evolution of life on Earth.
- How to safely dispose radioactive and other toxic waste materials.
- How sedimentary basins and hydrocarbon resources originate and evolve.
- How ore deposits are formed in diverse geologic settings.
- The fundamental physics of plate tectonics and heat, mass and fluid transfer through Earth's crust.
- How to better interpret geophysical data used to determine the structure and properties of Earth's crust.

The specific objectives of the ICDP in carrying out its mission are:

- to obtain secure funding for an effective planning, implementation and execution of a viable strategic program to meet scientific objectives of socio-economic significance.
- to identify sites for international cooperation in scientific drilling, and thus to provide cost effective means of answering key scientific questions in the ICDP's priority fields.
- to ensure that appropriate pre-site surveys are carried out.
- to provide a core of technical support for drilling projects to facilitate their efficient planning and operation.

- to ensure appropriate monitoring of the program and accountability to sponsors in terms of scientific effectiveness and financial efficiency.
- to ensure effective publication and dissemination of the results.

The principal advantages of such an international program of appropriate scale and viability are:
- focusing of scientific effort on drilling sites of global significance (World Geological Sites).
- affordability and cost-effectiveness through sharing.
- attraction of high quality researchers to topics of high national and international priority.
- Intellectual benefits to all participants arising from international cooperation.

# IV. Management plan

The ICDP is planned as a multinational program designed to coordinate international continental drilling projects with a variety of scientific targets and a wide range of depth targets and technical difficulty. Drilling projects will be selected from unsolicited proposals, submitted by scientists from member countries, and countries considering membership, on the basis of their scientific merit, by an international group of scientific and technical experts. Each project will be independently organized in the form of a national, binational, or multinational Joint Research Venture between the ICDP and other partners that will include the Principle Investigator(s) and other interested parties, such as, government agencies, industries, and private research groups and funding organizations. The Joint Research Venture will specify the scientific goals and the respective funding responsibilities, operational procedures and conditions of technical cooperation and exchange for all partners in a specific project.

## ORGANIZATIONAL STRUCTURE OF THE ICDP

In the light of the scope and objectives outlined above, a program structure has been developed which is simple, flexible in its proposed procedures to meet individual project requirements and inexpensive in its administration. The structure in Figure 1 is designed to facilitate the carrying out of five main functions:

1. Oversight and determination of policy - by the **Assembly of Governors (AOG)** representing the funding countries and agencies.
2. Scientific assessment of project proposals submitted for ICDP participation - by the **Science Advisory Group (SAG)**.
3. Program management and operation, including project prioritization and budget allocation - by the **Executive Committee (EC)** with its legal non-profit entity, the **Operational Support Group (OSG).**
4. Project management - by teams in host countries under the leadership of the Principle Investigators with the assistance of the Operational Support Group.
5. Project monitoring - by the Executive Committee, for reporting to the Assembly of Governors, with the assistance of project committees.

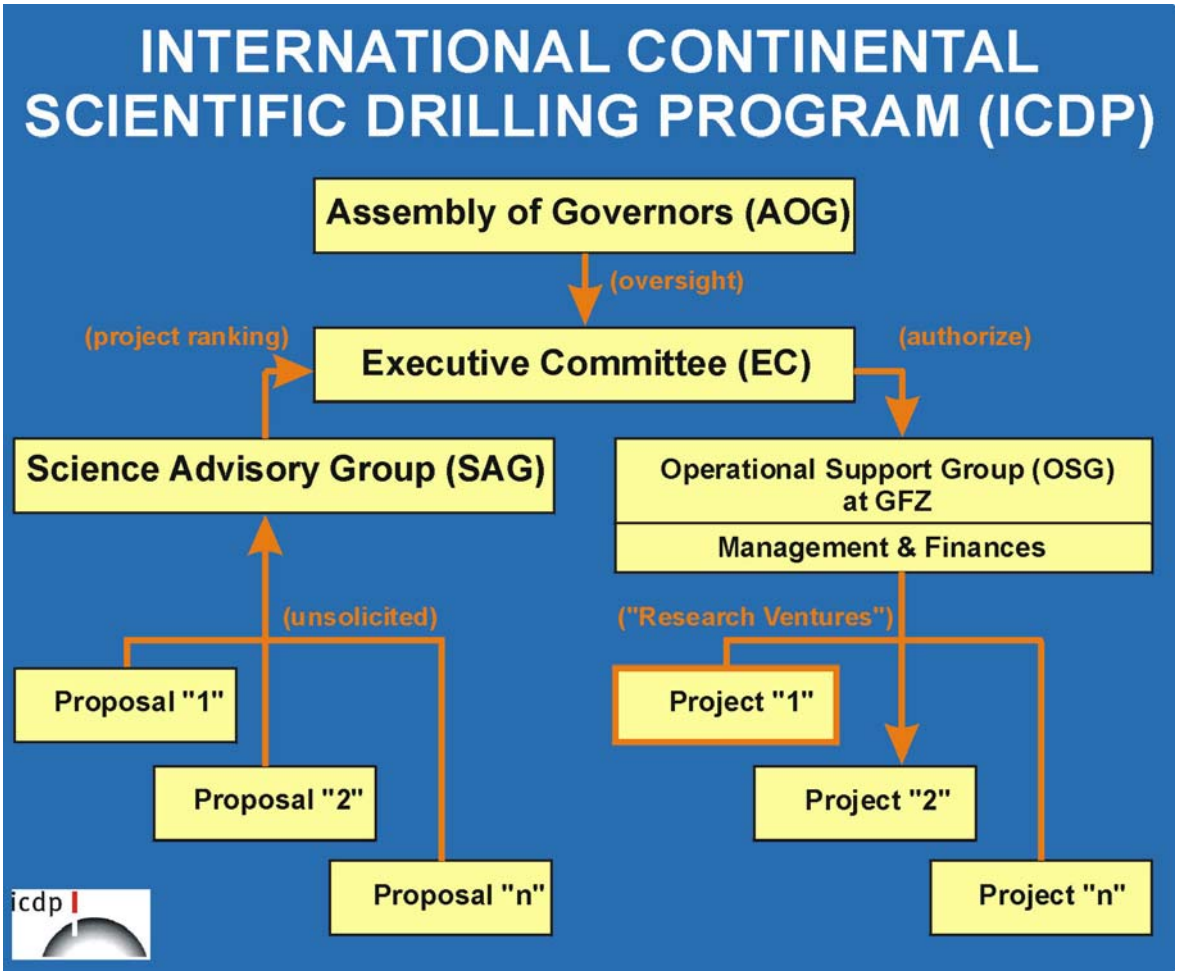
The main objective of the program structure is to maintain autonomous continental drilling projects of any type, independently organized and managed in the form of a Joint Research Venture with national, binational or multinational partners, connected through an ICDP funding contribution and committed to certain principles of scientific cooperation and exchange.

The ICDP structure and its elements are further described by the following definitions:

## The Assembly of Governors (AOG)

The ICDP will be managed through the **Assembly of Governors (AOG**) (Figure 1). The AOG will provide financial and scientific oversight, make major policy decisions and review the acceptance of new members for the whole ICDP program. Administratively, the AOG will be composed of one representative from each member country. Decisions of the AOG will be made through a consensus process guided by the Chair. The AOG will select its own Chair for a three year term and hold annual meetings convened by the Chair who will have the authority to call special meetings should the need arise. The Chair will be rotated amongst the Category A member countries (see Chap. VII).

*Figure 1*




## The Executive Committee (EC)

The AOG will authorize the **Executive Committee (EC)** to manage the ICDP. The EC will be made up of one appointee from each member country selected by the respective AOG member. Each member country will have an equal vote on the EC. The EC will elect a Chair and Co-Chair who will have the executive responsibility for carrying out the objectives of the ICDP. The EC will have the responsibility to assemble the Science Advisory Group's set of scientifically prioritized projects into an annual Program Plan with an associated annual budget that will constitute the ICDP Program.

The EC will report annually to the AOG on the past year's operational activities, ICDP- budget report and scientific accomplishments. Logistical and secretariat support for the EC will be provided for by the OSG. The EC will authorize the Operational Support Group to use commingled funds to achieve the goals of the annual Program Plan through of a series of Joint Research Ventures negotiated for each project.

## The Science Advisory Group (SAG)

The EC will be served by the **Science Advisory Group (SAG)** (see Organization) who will assist the EC by providing a scientific and technical review of competing proposals and recommending a program based on scientific priorities. The recommendations of SAG will be the primary input to the EC as it develops projects for both long-range and annual programs. Unsolicited proposals may be submitted by any single, or group of, scientist(s) from member countries or from countries interested in becoming members.

Members of the SAG will be scientific and technical experts selected by the EC in consultation with the subcommission CC4 on Continental Scientific Drilling of the International Lithosphere Program (Interunion Commission of IUGG and IUGS). SAG members will be appointed for a period from 3 to 5 years. Logistical and secretariat support for the SAG will be provided through commingled funds.

## The Operational Support Group (OSG)

The EC will be served by the ICDP **Operational Support Group (OSG**) (see Organization) who will provide the EC with the operational capabilities to manage projects as determined by the terms of individual Joint Research Ventures.

The OSG will act through authorization from the EC as the legal contractual partner for the ICDP to manage each project under the terms of a Joint Research Venture negotiated for each project. A ‚Joint Research Venture' is a negotiated contract between the Operational Support Group, on behalf of ICDP, and the Principle Investigators and other partners who have an interest in the project. The Joint Research Venture will set the terms by which the project shall be managed, the respective contributions, responsibilities and benefits of the partners and the primary programmatic and scientific goals of the project.

The OSG will be a not-for-profit entity under German law established at the GFZ. In addition, the OSG will provide the broad logistical support for the ICDP that incorporates the following support functions:

- Provide technical and scientific liaison to SAG and EC.
- Support for scientific and engineering drill site operations and management.
- Support for field facility for core and sample description and management.
- Provide a minimal set of downhole capability.
- Prepare Initial Reports that describe drilling, engineering and sample and core description and procedures for each project.
- Develop and construct special downhole tools.
- Assistance in contracting and permitting.
- Develop Joint Research Ventures for each project authorized by EC.
- Management and support of Secretariats for AOG and EC.
- Provide all data collected during each project through a readily accessible data management system for ICDP projects.

The cost of salaries and space for the nucleus of the OSG will be provided by the GeoForschungsZentrum Potsdam while additional costs for services will be charged on a project-by-project basis to the ICDP. Should the OSG need to be temporary extended due to an increased number of projects at a given stage, salaries for additional personal shall be covered by the commingled funds.

## Rights to make Proposals and Participation in ICDP Projects

Scientists and engineers from all member countries and countries considering membership will have the right to submit unsolicited proposals to the SAG. Proposals may be assembled by individuals or groups from single or groups of countries. Selection of proposals for ICDP projects will be based primarily on scientific and technical merit but will also include secondary considerations such as, permitting, environmental concerns, technical difficulties, safety, policy issues, etc., that mitigate the practicality of achieving successful results. In addition, other individuals may join project teams as opportunities arise and providing that their science or engineering goals and activities do not conflict with those of the project.

## Scientific Teams of Individual ICDP Projects: Make up and Privileges

Scientists and technicians from all member countries, and corporate affiliates will have the opportunity to compete for participation in any ICDP supported project organized as the Scientific Team. The Scientific Team will be defined by the EC on advice from the SAG. The team will be made up of Principle Investigator(s) (PI´s) and associated scientists and engineers. The PIs will be the individual(s) who have submitted the proposal and assembled the science team for accomplishing the major goals of the project. It is anticipated that each project will be made available, through timely announcements, as, 'HOLES OF OPPORTUNITY' for participation by other interested scientists. Proposals from scientists interested in participating in a project will be coordinated through the PI(s) and OSG. The scientists are expected to provide their own support but will be considered as part of the scientific team. The combined scientific and technical objectives of all investigators will be assembled into a final science plan by the PI(s) that will be evaluated by the EC.

The scientific team will have privileged access to the data for a period of 1 year following the completion of the drilling and logging program associated with the primary project goals. Following this period all data and samples will be made available to all scientists from member countries.

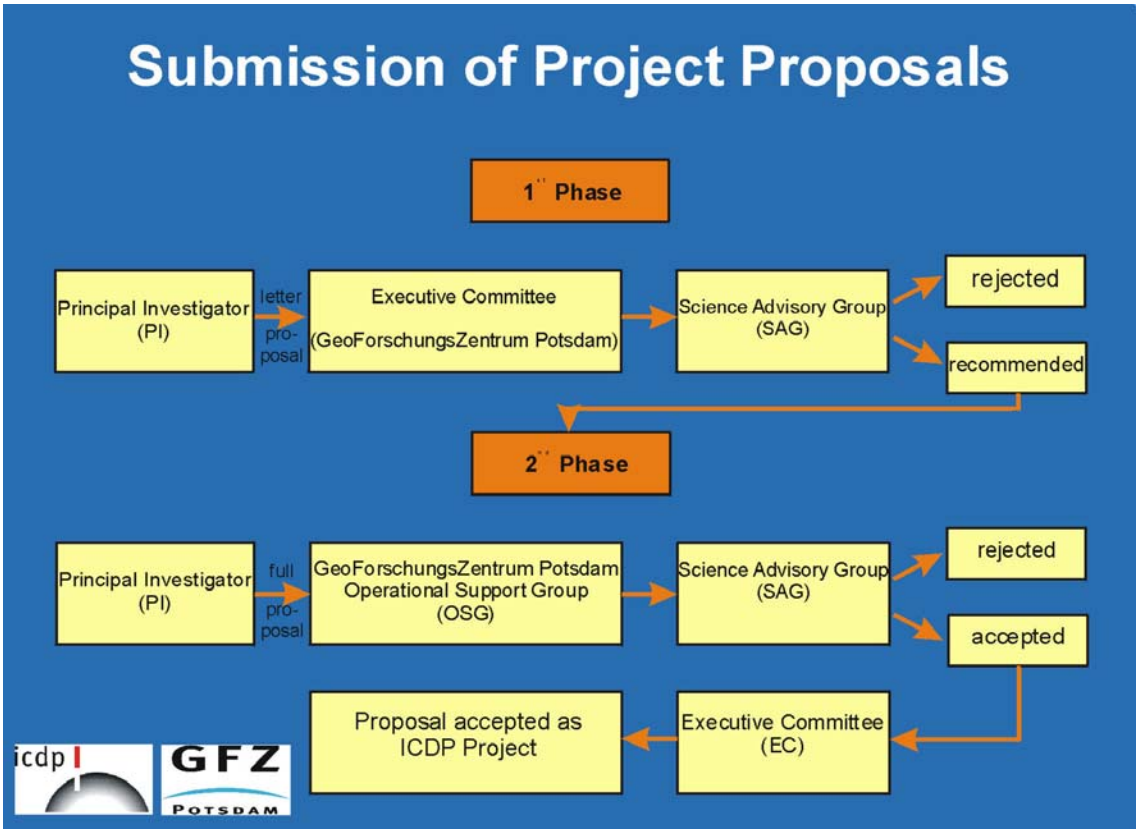
## Proposal Submission, Review and Project Development

The development of a single project will proceed through the following steps (see Figure 2):

1. Letter proposals submitted by Principle Investigator(s) (PI´s) to SAG.
2. SAG reviews Letter Proposals and divides them into proposals that should be encouraged and those that should be discouraged. PIs are informed of decision and those PI´s interested in developing full proposals for final review may do so. Where necessary PI´s may request funds from the SAG/EC for a Workshop to fully develop their proposal.
3. PI´s prepare final, full proposal for submission to SAG and final review.
    - The individual PI´s are responsible for site surveys.

- Scientist from any member country may submit a proposal for participation in the respective project.
- Proposals should be prepared independent of commingled funds.
- Proposals must include science goals, site surveys, permitting authority, satisfactory environmental impact reviews, management plan, operations plan, plans for long term curation, etc.
- Proposals must also include preliminary terms of Joint Research Venture (Note: at this stage the EC, through the OSG, will help (consult with) the PI(s) to work with issues/items unfamiliar to scientific groups).

*Figure 2*




4. SAG reviews proposals and assigns priority based on scientific merit and feasibility through iteration between PIs and OSG. Proposal's priority rating includes consideration of access to site, permitting, etc (i.e. practicality).
5. Proposals receiving SAG support develop a Project Plan. Project Plan includes primary goals of project and allows for inclusion of ‚Add on Science' through Announcement of Opportunity. ‚Add on Science' supported external to ICDP and included projects must be coordinated with PIs and reviewed by the SAG to ensure for the free-flow towards achieving major project goals.
6. PI´s assemble final project Plan that incorporates all components of project (i.e. original proposal plans and ‚Add on Science')
7. EC reviews feasibility of final project plans and puts together annual and long term program plan in relation to secondary considerations such as, permitting, environmental concerns, technical difficulties, safety, policy issues, etc., that mitigate the practicality of achieving successful results. The final process is done in negotiation with PIs and OSG.

8. EC gives authority to OSG to proceed. Annual program given to OSG (Commingled funds authorized for drilling and negotiated set of project specific goals as defined in Joint Research Venture).
9. OSG then negotiates a Joint Research Venture for each project including consideration of the following :
    - Negotiations with drilling contractor, drilling engineer and PI´s .
    - Sample management, description, distribution and curation.
    - Database archiving and distribution.
    - Publication requirements and schedules.
    - Initial Reports (detailed account of drilling, engineering, logging and sample handling and description)
    - Review of scientific journals
    - Logging services and downhole experiments
    - Each project managed with balanced consultation between PI, engineer, contractor and Operational Support Group

# V. Data- and sample-related issues

### Data and Sample Ownership

The ownership of all samples and data collected during the course of an ICDP project will be defined in the Joint Research Venture agreement. The ICDP/OSG will maintain and manage a database of all data related to the program.

### Data and Sample Storage, Curation, Access and Privileges

The long-term storage and curation of all data and samples, collected from the first stages of proposal preparation to project completion, will be defined in the project Joint Research Venture agreement guided by individual protocols.

During a 1 year period access to data and samples will be limited to members of the project scientific team. After this period scientists from all participating countries will have the following data and sample privileges:

1. Access to all data produced by each project, this includes all scientific and technical data and samples collected from the first stages of proposal preparation to final project completion
2. Access to the drill core, samples, well logs and associated surveys collected during the course of each project, and
3. Access to engineering plans, data or other information collected or developed by the ICDP

### Databases, Archiving and Distribution

The OSG will maintain a database of all information collected during the course of each project. The data will include all site surveys, engineering and scientific reports of the drilling phase, all downhole measurements, full description and photographing of the drill core, measurements made on the core, or any other samples from the drill hole and all science and engineering reports published in professional and scientific journals. All archived data are to be made available to member countries through easily accessible electronic media.

## Ownership of Assets

All equipment, facilities and other assets (e.g. drilling rig or tools, logging tools, sample laboratories) purchased or developed by the ICDP commingled funds will be held by OSG. Any distribution of equipment, facilities or any other assets during, or at the termination of, the program will be determined by EC.

# VI. Training Program

An important component of the ICDP will be its capability to train earth scientists, engineers and technicians in drilling-related technologies. In order to achieve this goal ICDP plans to set aside funds to provide a training program as part of each project. It is anticipated that students and other individuals will submit proposals to the EC to compete for these funds.

# VII. ICDP Membership categories - costs and privileges

Participation in the ICDP is divided into the following two categories:

### Members:

Members are single, or groups of scientific (research) institutions or countries that join together to participate in the ICDP and provide an annual membership fee. Such groups could include non-governmental bodies such as the European Science Foundation (ESF), the Deutsche Forschungsgemeinschaft (DFG) and the Commonwealth of Independent States (CIS), or groups of governmental organizations cooperating to provide funds for a single membership. Each member will have a single representative on the AOG and on the EC as outlined in chapter IV. The membership fee will be based on two considerations. The first will be based on a broad spectrum of criteria that include economic factors, scientific manpower and comparability to ICSU membership fees. The second is a negociated commitment with member countries to provide funds for drilling and logistical support when the project is located in a member's own country. The final costs will be negotiated with respective countries through the Joint Research Venture mechanism.

### Corporate Affiliates:

Corporate Affiliates are reserved for industrial partners or for private research groups that wish to participate in the ICDP. Corporate Affiliates will have access to join in the scientific and technical programs of the ICDP and advise in the planning process. An annual fee will be charged at a minimum of US $ 25.000. New affiliates shall be permitted to join subject to the agreement by the AOG who shall determine the terms under which the new affiliate shall be invited to join.

Sponsorship is desired at all times.

## Membership Fees and Commitments

The member countries will support the ICDP through annual financial contributions to the GFZ. Currently 4 main categories are being discussed:

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|---|---|
| Category A | Annual fee of US $ 700,000 |
| Category B | Annual fee of US $ 200,000 |

| | |
|---|---|
| Category C1 | Annual fee of US $ 100,000 |
| Category C2 | Annual fee of US $ 50,000 |

It is anticipated that member countries will assist in drilling and logistic costs when a drilling project takes place in a host country. The distribution of these costs will be negotiated through the Joint Research Venture.

However, final decisions on membership fees will be made by the AOG.

The contributions will be translated into an annual commitment through a bilateral agreement with the GFZ. It is anticipated that, barring unforeseen circumstances, this phase of the ICDP will last for 6 years. Conversion of currencies will be made at the rate of exchange current at the time of each annual funding commitment.

The financial contributions of all members will be commingled to support the ICDP ‚program costs' (see following section) as authorized by the EC. Annual accounts and reports of activities will be submitted by the OSG to the EC and forwarded to the AOG.

## Distribution of Costs

The distribution of cost is divided into three main groups:
1) Commingled Funds, 2) Country Support and, 3) Joint Research Ventures.

1. The Commingled Funds shall be used to cover shallow drilling contracts, engineering/ contracting, logging (programmatic), scientific, engineering and technological on-site activities, management of data systems and shared Joint Research Ventures.
2. The individual country in which the project is being performed shall cover costs for science research (salaries, facilities), permits, EIS, safety, pre-drilling surveys, curating of cores etc.
3. Joint Research Ventures shall cover costs for, deep/costly drilling, curating (during project), permits, safety, EIS, pre-drilling surveys, hole of opportunity.

## ICDP Program Costs

Commingled ICDP funds will only be used for the following purposes and will be called **‚Program Costs':**

**1. Administrative costs**

- Management, logistics and secretariat for SAG
- Costs for management and logistic services of OSG related to annual Program Plan approved by the AOG for Common ICDP interest, except for personnel costs for minimum staff and office accommodation

**2. Salaries**

- No salaries will be provided for from ICDP commingled funds except for temporary necessary additional personnel for the Operational Support Group

**3. Travel Expenses**

- Travel expenses for scientists and engineers directly working for ‚on-site' objectives of ICDP projects (identified in Joint Research Venture)
- Travel expenses for SAG Chair and secretariat as related to needs
- Travel expenses for members of SAG panels and committees to attend meetings
- Negotiated travel expenses for individuals attending EC authorized workshops

**4. Contributions to Project Costs (identified in Joint Research Venture)**

- Contract for drilling the hole
- Downhole logging contracts related to the main goals of the project
- Essential site surveys directly related to achieving the goals of project
- Supportive engineering logistics at site (expenses and materials)
- Supportive scientific logistics at site for science management, sample description, sample curation, etc., (expenses and material)
- Science research funds for participating scientists to achieve essential goals of the project as defined in the final project description from the EC (does not include salaries)
- Transport of drill core and other samples from drill site to final repository
- Limited set of workshops (project-by-project) to ensure proper coordination and publication of results
- Funds for preparation and publication of drill site report (science and engineering)
- Funds for preparation and publication of final scientific reports/publications

**5. Workshops**

- workshops recommended by SAG and authorized by the EC

## Individual Project Costs

ICDP commingled funds will not be used for the following activities and will be called ‚Project Costs':

- Proposal preparation
- Permitting, presite survey, environmental impact reviews, site survey costs related to the preparation of the proposal (note proposal should not propose a theoretical concept but a specific project that can be accomplished)
- Permitting, site acquisition and environmental costs needed to proceed with the project.
- Salaries in general
- Costs associated with scientists/engineers using hole, authorized for the ICDP by the EC, as a ‚hole of opportunity'
- Downhole logging not related directly to main project goals
- Long-term curation of drill core and other samples (negotiated project-by-project)

# VIII. Implementation of ICDP

**Immediate plans**

In order to implement the initial phase of ICDP, the GFZ Potsdam and the NSF will begin the following process:

**Invitation to other Countries to join in the ICDP**

Both GFZ and the NSF, with strong support from their governments, would like, through this Prospectus, to extend an invitation to other countries interested in continental scientific drilling to join in this multinational earth science program. The Prospectus provides information on the scope, nature and plans for management and operation of an ICDP and includes a basis for negotiating membership terms.

**Solicitation of Proposals**

In order to start the ICDP, announcements will be published in appropriate national and international journals asking interested scientists, from member and potential member countries, with competitive ideas for scientific projects needing drilling to submit proposals. Although, in the long term, the program will adhere to the guidelines for proposal submission given above, in the initial competition, ICDP will accept both letter proposals and full proposals for those potential projects that are more mature and ready to start. This may allow an earlier start date for the program.

**Selection of Projects**

Parallel to the submission of proposals the ICDP will form an international group of scientific and technical experts to serve on the Science Advisory Group (SAG). The SAG will review the initial submission of proposals and preproposals and provide the first set of recommendations to the Executive Committee (EC). These recommendations will be the basis for making plans for the first few ICDP projects that could begin by the close of 1996.

**Formation of Management and Operational Structure**

Early in 1996, members of the Assembly of Governors (AOG) and the Executive Committee (EC) will be appointed. Countries interested in joining in the multinational program will be invited to act as observers. At the same time the GFZ will assemble the nucleus of an Operational Support Group (OSG) that might provide will be adequate logistical support for the first few projects.

**Initiation of Drilling**

Once the essential elements of the Management and Operational structure are in place it will be possible to act on the recommendations of the SAG and move forwards with the first few projects. It is anticipated that the first project could begin by the close of 1996.

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