

Memorandum of Understanding (MOU)

on the

**Implementation, Management and Operation of the
International Continental Scientific Drilling Program (ICDP)**

between the

**Geological Survey of Canada,
Earth Sciences Sector, Department of Natural Resources Canada**

and the

**GeoForschungsZentrum Potsdam,
as a Governmentally funded, public law Foundation
of the Federal Republic of Germany,**

The Geological Survey of Canada (hereinafter referred to as “GSC”) and the GeoForschungsZentrum Potsdam (hereinafter referred to as “GFZ”),

- (I) recognizing that improved understanding of earth processes and earth structure will lead to better application of geological, geophysical and geochemical knowledge and to improved technologies for understanding the mechanisms controlling earthquakes, volcanic eruptions and landslides and the migration of their adverse effects; the wise use of, and exploration for, hydrocarbon, mineral and water resources; distinguishing between the anthropogenic and natural forces that control climate and environmental change; the safe disposal and monitoring of toxic and nuclear wastes; mitigating the effects of pollution on human populations; understanding the interactions of the biosphere with Earth’s crust; and understanding the changing parameters that control the evolution and extinction of species;
- (II) recognizing the unique capabilities of scientific continental drilling to provide fundamental and globally significant knowledge on the composition, structure and processes that govern the formation of the Earth’s crust;
- (III) affirming the need to encourage enhanced coordination among existing national, binational and other multinational scientific drilling projects;
- (IV) considering the common interest amongst international scientists to work together on joint projects where scientific drilling is a critical technology; and
- (V) further recognizing the scientific goals identified in the Report, of the International Meeting on Continental Drilling held in Potsdam, August, 1993,

do therefore agree as follows:

Article 1 – Purpose and Multinational Participation

GFZ and GSC (also jointly referred to as the Parties) shall cooperate in the scientific planning, management and operation of an earth science research program of scientific drilling on the continents to be known as the International Continental Scientific Drilling Program (ICDP). GFZ and GSC will encourage additional international participation in ICDP through MOUs with other national or international organizations and funding agencies and countries. Such MOUs will be consistent with terms of this MOU, although lower contribution for countries (including G-7 nations *¹) may be accepted. To facilitate such participations, the Assembly of Governors (AOG) shall promptly recommend a draft model MOU to the GFZ for its use in the conduct of negotiations with potential participants in ICDP. Prior to signing any such MOU, the GFZ shall afford each member of the AOG the opportunity to review and comment on the proposed MOU, and each such MOU must be approved by all representatives of the AOG. Additional MOUs with new members joining the ICDP will be signed by the GFZ on behalf of the AOG.

Article 2 – Management

- (1) The GFZ shall serve as the Executive Agency for ICDP. The Executive Agency will provide operational support for the ICDP through the Operational Support Group (OSG), which will be formed and located within, and managed by the GFZ. Responsibilities and the Staffing of the OSG are defined in Annex A. Expenditure of ICDP funds by the Executive Agency must be approved by the AOG through an annual program plan and budget recommended by the Executive Committee. ICDP funds will be used for the purposes set out in Annex D. Any contract or order placed by the OSG in excess of \$150,000US shall require the approval of the AOG under such procedures as may be agreed upon by the AOG.
- (2) The AOG shall have authority to oversee activities undertaken pursuant to this MOU. In particular, the AOG:

¹ * G-7 Nations are the following: Canada, France, Germany, Italy, Japan, U.S.A., U.K.

- a) may establish such committees and subcommittees as it deems necessary and shall take such steps as are necessary to establish the Executive Committee (EC) and Scientific Advisory Group (SAG) as described in Annex B and Annex C to this MOU;
 - b) must approve all long range plans and the annual program plan and associated budget. In doing so, the AOG shall take into account the recommendations of the EC;
 - c) may amend any of the Annexes to this MOU;
 - d) may establish a program of corporate affiliates to ICDP under which affiliates may be entitled to participate in ICDP planning activities, access to materials and data collected by the ICDP, or other considerations in return for payment of an annual membership fee and such considerations as the AOG considers appropriate. Any such membership fee shall be used for the same purpose as the annual membership contributions of the Parties; and
 - e) exercise such other authority or responsibilities as are set forth elsewhere in this MOU.
- (3) Decisions of the AOG will be made through a consensus process guided by the Chair who will be selected from amongst those countries that have paid the full membership fee of \$700,000US (category A). Each member country, or group of countries and/or other institutions that may join together to form a single membership, that signs an agreement with the GFZ may appoint one representative to the AOG.
- (4) Initially, a quorum to conduct a meeting of the AOG will consist of all members of the AOG and passage of any motion will require the unanimous agreement of all members. The AOG may adopt by-law rules of procedure that may be amended from time to time by the AOG, provided that any such procedure and amendments, which may include revisions to the quorum and unanimity rule above, must be agreed to by members representing one national or international organization (including funding agencies) or country providing at least 75% of the respective annual membership contribution to the ICDP.
- (5) The AOG will select its own Chair for a period of three years who will be rotated among the category A member representatives. The AOG will meet at least annually. The Chair will convene the AOG and has the authority to call special meetings should the need arise.

Article 3 – Scientific Projects

- (1) GSC and GFZ anticipate that the operational activities of the ICDP will be based on unsolicited, scientific proposals submitted by scientists from member countries or other members entering into the agreements contemplated in Article 1. To facilitate long-term planning and encourage others to join the ICDP, the AOG may also authorize consideration (but not funding) of proposals from scientists of countries not having bilateral MOUs if the AOG believes these countries are giving serious consideration to participation in the ICDP.
- (2) Proposals submitted to the ICDP and accepted for evaluation will be reviewed by the SAG. Reviews will be conducted in accordance with procedures and criteria approved by the AOG. The process of proposal submission, review and project development is given in Annex E.
- (3) GSC and GFZ recognize that the annual contribution provided under this MOU and under any related MOU will not necessarily be sufficient to fund the full costs of all projects approved for ICDP support. In such cases, other organizations besides the OSG may be involved in support of some phases of any given project, particularly since projects can be expected to include a planning phase, an operational phase, and a post-operations phase that includes data collection, analysis and management, and core

curation and distribution. Accordingly, whenever the EC recommends any project to the AOG for ICDP funding, its recommendation shall be accompanied by a report from the OSG which specifies the planning sources for the funding for the various phases and aspects of the project, and the anticipated distribution of responsibilities between the OSG, the proposing organization and the Principal Investigator, and other organizations for support, management and conduct of the project, including post-operational activities such as long term storage and curation of all data, cores and samples.

- (4) Signed agreements or contracts by participants specifying their respective rights and obligations for the conduct of a project will be required. Such agreements will hereafter be referred to as "Joint Research Ventures". The Joint Research Venture will set the terms by which the project shall be managed, the respective contributions, responsibilities and benefits of the participants, intellectual property rights, and the primary programmatic scientific goals of the project. Other partners may be any governmental agency, private research foundations or industrial groups that have an interest in sharing the common goals of the ICDP.

Article 4 – Cores and Scientific Data

The AOG will establish policies concerning ownership and access to cores, samples, and other data obtained during ICDP-supported projects. Such policies will provide that scientists from Canada and Germany and other countries covered by an MOU as contemplated in Article 1 will:

- (I) have access to all data produced by each project, including technical data, samples and cores collected from the first stage of proposal preparation to final project completion,
- (II) have full access to drill core, samples, well logs and associated surveys collected during the course of each project, and
- (III) have access to engineering plans, data and other information collected or developed by the ICDP.

However, the AOG may restrict the right of open access to allow the scientific team conducting a project the opportunity to publish their preliminary studies. Since each project will have different constraints, criteria limiting open data and sample access will be defined for each Joint Research Venture and will be limited to periods of approximately one year.

Article 5 – Ownership of Assets

Title to all equipment, facilities and other assets (e.g., drilling rig or tools, logging tools, sample laboratories) purchased or developed by the ICDP using commingled funds will be held by the Executive Agency. Any distribution of such equipment, facilities or any other assets during, or after termination of the program, will be determined by the AOG.

Article 6 – Intellectual Property Rights

- (1) Unless stated otherwise under a Joint Research Venture, intellectual property created during joint research under ICDP shall be owned jointly by the affected ICDP members.
- (2) With respect to the copyrightable data produced under ICDP, each Party shall be entitled to at least a non-exclusive, irrevocable, royalty-free license in all countries to reproduce, publicly distribute and translate scientific and technical reports and distribution of data to which the right of access has been delayed under Article 4 until such time as that period of delayed access has expired.
- (3) Disputes concerning intellectual property arising under this MOU should be resolved through discussions between the affected members of ICDP. Upon mutual agreement of the Parties, a dispute shall be submitted to an arbitral tribunal for binding arbitration.

Article 7 – Visas, Customs and Regulations

Each Party will assist in identifying groups and/or agencies who will assist participants in ICDP projects to obtain the necessary visas for access into the country, and meet the regulations and custom laws necessary for the passage of instrumentation, equipment, rock cores and samples, paper (analog) and digital logs, all records and all associated drilling facilities and scientific laboratories, essential for the project, to and from the drill site.

Article 8 – Duration and Termination

- (1) This MOU shall become effective from the date of the last signature by the Parties and shall remain in force for five years. Additional continuations may also be considered in future years.
- (2) At the end of three years the Parties will consider renewal of the affiliation to ICDP for a second five-year period.
- (3) Either party may terminate this MOU upon three month's written notice to the other party. If the ICDP has more than two members left at the time of this unilateral termination, the ICDP will be continued and the respective MOU's among the remaining Parties will remain in force.
- (4) If the GFZ terminates this MOU it will continue to provide the services of the OSG to complete existing projects already authorized by the AOG. In that case, the tasks and funding of the OSG have to be renegotiated between the GFZ and the AOG.
- (5) In the event of termination, any remaining funds contributed by each Party shall be refunded and any equipment facilities and/or other assets contributed to the ICDP shall be distributed in accordance with the provision in Annex F Paragraph 5.

Article 9 – Amendment

Proposed amendments to this MOU shall be prepared at least three months prior to each AOG meeting and reviewed and recommended by the AOG prior to submission to the Parties for signature.

Article 10 – Resolution of Conflicts

The Parties will attempt, in good faith to resolve any controversy or claim arising out of, or relating to, this MOU.

Signed in two originals in English.

On behalf of the GFZ:

On behalf of the GSC:

.....
Dr. Rolf Emmerman
Scientific Executive Director

Dr. Irwin Itzkovitch
Assistant Deputy Minister
Earth Sciences Sector
Department of Natural Resources Canada

and

Date: *Sept 27/01*

.....
Dr. Bernhard Raiser
Administrative Executive Director

Date: *Oct. 5, 2001*

Annex A: Responsibilities and Staffing of the Operational Support Group (OSG)

Article 1 (General)

Subject to the availability of funds, the GFZ will provide operational support for the ICDP through the OSG that will consist of a minimum number of staff and will be formed and located within, and managed by the GFZ.

Article 2 (Support functions)

The OSG will provide the broad logistical support for the ICDP that incorporates the following support functions:

General support functions

- Support the AOG and EC in carrying out the programmatic goals of the ICDP.
- Provide Secretariat functions for AOG, EC and SAG.
- Assist in proposal preparation.
- Provide technical and scientific liaison to SAG and EC.

Project support functions

- Develop Joint Research Ventures for each project authorized by AOG.
- Develop the technical specifications for ICDP supported projects, including drill hole specifications, and specifications for drilling equipment and methods and the down-hole scientific equipment, tools and methods needed to accomplish the objectives of individual projects.
- Award and manage contracts for drilling services and operations, core recovery and provision of scientific equipment, tools or services for down-hole measurements.
- Support for scientific and engineering drill site operations and management.
- Support for field facilities for core and sample description and management.
- Minimal set of down-hole capability.
- Prepare Initial Reports that describe drilling, engineering and sample and core description and procedures for each project.
- Develop and construct essential down-hole scientific not available commercially.
- Provide assistance in contracting and permitting.
- Provide all data collected during each project through readily accessible data management system for ICDP projects.
- Maintain databases that provide access to all data, samples and core collected in ICDP projects.

Article 3 (Costs)

The costs for the OSG will be distributed as follows:

- GFZ will cover all the costs for the staffing, salaries, benefits and direct and indirect expenses for OSG personnel.
- GFZ will provide funds for office accommodation and OSG organizational overhead and general administrative expenses.
- GFZ will provide funds for travel for OSG personnel conducting the general support functions for ICDP.
- Costs for projects authorized by the AOG though the Long-Range Plan and annual Program Plans shall be charged through the respective projects to ICDP commingled funds.
- Costs for services for the Principal Investigators of a project before acceptance of a project by the AOG shall be charged to commingled funds.

Annex B: By-laws for the Executive Committee (EC)

Article 1 (Membership)

The AOG will establish an EC consisting of one member appointed by each voting representative on the AOG.

Article 2 (By-laws)

The By-laws and procedures of the EC shall be subject to the approval of the AOG. The EC will elect its own Chair and Co-chair for a period of three years.

Article 3 (Annual Program Plan)

The EC, taking into account recommendations or advise of the OSG and the Science Advisory Group (SAG), will annually recommend to the AOG a Long Range Plan and an annual Program Plan with associated budget for AOG approval. The recommendations for the Long Range Plan and the Annual Program Plan shall be prepared in accordance with the schedules established by the AOG. Unless otherwise directed by the EC recommendations shall be transmitted to the AOG no later than four months prior to the next ICDP fiscal year. The ICDP fiscal year shall be from January 1 through December 31.

Article 4 (Responsibilities)

To carry out its responsibilities the EC will:

- Select a SAG of scientific and technical experts to assist the EC by providing a scientific and technical review of competing proposals and recommending a program based on scientific priorities.
- Assemble the Science Advisory Group's set of scientifically prioritized recommendations into a Long Range Plan implemented through an Annual Program Plan with associated budgets through a series of projects.
- Annually recommend to the AOG a Long Range Plan and annual Program Plan with associated budgets.
- Monitor the annual expenditure and performance of the OSG for the AOG.
- Report annually to the AOG on the past year's operational activities, budget controls and scientific accomplishments.
- The EC on its own initiative or when requested by the AOG, may make recommendations to the AOG concerning any matter requiring the approval or action of the AOG.

Annex C: Scientific Advisory Group (SAG)

Article 1 (Appointment)

- a) The SAG will be appointed by the EC.

Article 2 (Membership)

- a) The SAG will be composed of scientific and technical experts selected by the EC. SAG members will rotate through serial appointment for periods from 3 to 5 years.

Article 3 (Functions)

- a) The SAG will review unsolicited proposals submitted by any single, or group of, scientist(s) from Member countries or from countries interested in becoming members.
- b) The SAG will assemble the proposals into a priority list based on the scientific and technical merits of the proposal and the capabilities of the Principal Investigators. The scientific priorities recommended by SAG to the EC will be the primary input into the development of both the ICDP Long Range Plan and the Annual Program Plan.

Annex D: Use of ICDP Commingled Funds

Article 1 (Allowed Costs)

ICDP Commingled funds will only be used for the following purposes.

1. Administrative Costs
 - a) Costs for management, logistics and secretariat support for SAG.
 - b) Costs for management and logistic services of OSG related to Annual Program.
 - c) Plan approved by the AOG for common ICDP interest, except for personnel costs for minimum staff and office accommodation.
2. Salaries
 - a) Except for certain costs directly related to project logistics, salary costs are not authorized.
3. Travel Expenses
 - a) Travel expenses for scientists and engineers directly working for “one site” objects of ICDP projects.
 - b) Travel expenses for SAG Chair and Secretariat as related to needs.
 - c) Travel expenses for members of SAG panels and committees to attend meetings.
 - d) Negotiated travel expenses for individuals attending EC authorized workshops.
4. Project Related Costs
 - a) Contract for drilling the hole.
 - b) Down-hole logging contracts related to the main goals of the project.
 - c) Essential site surveys directly related to achieving goals project.
 - d) Supportive engineering logistics at site (salaries and materials).
 - e) Supportive scientific logistics at site for science management, sample description, sample curation, etc., (salaries and material).
 - f) Science research funds for participating scientists to achieve essential goals of the project as defined in the project description from the EC (does not include salaries).
 - g) Transport of drill core and other samples from drill site to final repository.
 - h) Limited set of workshops (project-by-project) to ensure coordination and final publication of results.
 - i) Funds for preparation and publication of drill site report (science and engineering).
 - j) Funds for preparation and publication of final scientific reports and / or publications.

Article 2 (Costs borne by parties other than ICDP)

The program will not provide funds for the following activities:

- a) Permitting, site acquisition, 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).
- b) Permitting, site acquisition and environmental costs needed to proceed with the project.
- c) Salaries for engineers and scientists associated with project who do not have “on site” operational roles.
- d) Salaries for scientists and /or engineers using hole, authorized for the ICDP by the EC, as a “hole of opportunity”.
- e) Down-hole logging not related directly to main project goals.
- f) Long-term curation of drill core and other samples (negotiated project by project).
- g) Management and logistics of AOG and EC to be provided by the OSG.
- h) Personnel and office accommodation costs for the minimum number of staff of the OSG to be provided for by the GFZ.

Annex E: Guidelines for Submission of Proposals

(Framework for Cycle of Proposal Submission, Review and Project Development)

The development of a single project will proceed through the following steps:

- a) Letter Proposals submitted by Principal investigator(s) (Pls) to SAG.
- b) SAG reviews Letter Proposals and divides them into proposals that should be encouraged and those that should be discouraged. Pls informed of decision and those Pls interested in developing full proposal for final review may do so. Where necessary Pls may request funds from the SAG and/or EC for workshop to fully develop proposal.
- c) Pls prepare final, full proposal for submission to SAG and final review.
 - 1) Pls are responsible for site surveys
 - 2) Scientists from any member country may submit proposal
 - 3) Proposals prepared independent of commingled funds
 - 4) Proposals must include science goals, site survey, permitting authority, satisfactory environmental impact review, management plan, operations plan, plans for long term curation, etc.
 - 5) Proposal to include preliminary terms of Joint Research Venture

(Note: at this stage the EC, through the OSG, will help (consult with) the Pls to work with issues and /or items unfamiliar to scientific groups.)
- d) SAG reviews proposals and assigns priority based on scientific merit and technical feasibility (through iteration between Pls and OSG proposal's priority rating includes consideration of access to site, permitting, etc. (i.e., practicality)
- e) SAG will forward recommendation of highest priority proposals to EC for inclusion in Long Range Plan and Annual Program Plan. Proposals should include Project Plan that lists the primary goals of project and allow for inclusion of "Add on Science" through Announcement of Opportunity. "Add on Science" support external to ICDP and included projects coordinated with Pls and reviewed by the OSG to ensure that there is no disruption of major project goals.
- f) Pls assemble final Project Plan that incorporates all components of project (i.e., original proposal plans and "Add on Science").
- g) EC reviews feasibility of final Projects Plans and puts together annual and long term program plans 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 Pls and OSG.
- h) EC incorporates project into annual Program Plan for AOG approval and then gives authority to OSG to proceed.
- i) OSG then negotiates a Joint Research Venture for each project. Includes consideration of the following items:
 - 1) Selection of drilling contractor and specifications
 - 2) Selection of drilling engineer to manage project
 - 3) Consultation with Pls to ensure primary scientific goals of project are met
 - 4) Sample management, description and curation
 - 5) Database archiving and distribution
 - 6) Publication requirements and schedules
 - 7) Initial Reports (detailed account of drilling, engineering, logging and sample handling and description)
 - 8) Review scientific journals
 - 9) Logging services and down-hole experiments
 - 10) Each project managed with balanced consultation between Pls, engineer, contractor and Operational Support Group

- j) The Scientific Team will be defined by the EC with advice from the SAG and the Pls. Scientists and technicians from all Member Countries, Sponsors and Corporate Affiliates will have the opportunity to compete for participation in any ICDP supported project. The team will be made up of Pls and associated scientists and engineers. The Pls will be the individual(s) who has submitted the proposal and assembled the science team for accomplishing the major goals for the project. It is anticipated that each project will be made available, through timely announcements, as “hole of opportunity” for participation by other interested scientists. Proposals from new scientists interested in participating in a project will be coordinated through the Pls and OSG for scientific and technical content. The new 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 Pls that will be evaluated by the EC.

Annex F: Funding and Financial Issues

1. Each party agrees to provide funding for the overall scientific planning, management, and operation of the ICDP. For the first year of this agreement, GSC has provided total funding in the amount of \$200,000.00 (US) to allow for Canadian membership into the ICDP. This funding has been paid to the Executive Agency for transfer to the OSG and has been "commingled" to provide the base funding for the ICDP. To extend Canadian membership in the ICDP during subsequent years, the GSC will attempt to explore the possibility of securing funding from other potential Canadian sources. Funding levels to cover the overall planning, management, and operation of the ICDP for the remaining four (4) years of this agreement will be agreed to in writing by both Parties on an annual basis.
2. The Executive Agency or the OSG may, with the approval of the AOG, accept contributions from others for the support of particular projects.
3. To the extent that activities have been authorized in the annual budget approved by the AOG, the annual contributions may be used for payment of travel and per diem for members of the SAG, project operational costs as authorized by the AOG, OSG costs related to management and operation of ICDP projects as authorized by the AOG in the annual Program Plan. Broad guidance for the use of ICDP commingled funds is given in Annex D.
4. In addition to its annual membership fee, the GFZ agrees that, subject to the availability of funds, it will provide funds for the support of the OSG. GFZ agrees to cover all the costs for the staffing including salaries, benefits and direct and indirect expenses for OSG personnel; funds for office accommodation, and funds for travel for OSG personnel conducting the general administrative duties for the ICDP. However, costs for support and assistance of projects authorized by the AOG through the Long Range Plan and annual Program Plans shall be charged through the respective projects to ICDP commingled funds.
5. Either Party may agree to provide equipment, facilities and / or other assets to the ICDP in addition to the above contributions. The contributing party will retain ownership of such equipment, facilities or other assets unless they indicate otherwise. The ICDP will have the right to use and manage the assets as agreed to in writing by the Parties.
6. Each Party shall bear the costs of its own scientific and administrative activities conducted under this MOU.
7. The Executive Agency shall provide an annual audited report to the AOG, which shall provide an accounting of the funds provided by the Parties.