

PROJECT ANNEX NO. 12

Between the:

GEOLOGICAL SURVEY OF CANADA of the Earth Sciences Sector, Department of Natural Resources, Canada, represented by the Sustainable Development through Knowledge Integration Program (hereinafter referred to as "ESS"),

and the:

U.S. GEOLOGICAL SURVEY of the Department of the Interior, United States of America (hereinafter referred to as "USGS"),

concerning:

THE STUDY OF RISK ASSESSMENT OF GEOHAZARDS AND ENVIRONMENTAL HAZARDS IN THE SEA-TO-SKY AND PUGET SOUND REGIONS

(hereinafter referred to as the "Project")

Authority: This is an Project Annex (hereinafter referred to as "PA") to the Memorandum of Cooperation signed on the 9th day of April, 1999, and the Letter of Exchange signed February 13th and March 10th, 2004, between the ESS and the USGS, (hereinafter jointly referred to as the "Parties"). This PA is approved in accordance with Article VI of the Memorandum of Cooperation.

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ESS: Boyan Brodaric, 234B-615 Booth St., Ottawa, ON K1A 0E9, phone: 613-992-3652, fax: 613-995-9273, e-mail: brodaric@nrca.gc.ca.

Responsible Senior Managers: USGS: Barbara J. Ryan, Associate Director for Geography, 102 National Center, 12201 Sunrise Valley Drive, Reston, Virginia 20192, bjryan@usgs.gov, phone: (703) 648-7413;

ESS: Bob Ryerson, Director General, Canada Centre for Remote Sensing, ESS, Natural Resources Canada, 327-588 Booth Street, Ottawa, ON, K1A 0E4, ryerson@nrca.gc.ca, phone: 613-947-1222.

Background: The Parties mutually recognize the need to develop methods, tools and information to support societal decision-making by planners and policy-makers in areas such as geohazards, environmental hazards, water, etc. Until now the Parties have worked on different aspects of this issue and have recently recognized that their combined efforts, methods and tools will provide a more encompassing approach. It is expected that this will lead to a broader decision support framework that will be exploited in the future by both Parties.

Scope: This PA is intended to enhance the understanding of the societal impact of geohazard and environmental risks in the Sea-to-Sky region of British Columbia, Canada, and the Puget Sound Region of the United States, develop and improve understanding of integrated quantitative and qualitative risk assessment methodologies, contribute enhanced tools to an expanding decision support framework for geohazards and environmental hazards, and expand upon the collaboration between the Parties begun under the "Pathways" project of the ESS.

Work Plan: The following activities will be conducted in a collaborative manner by the Parties and will form the basis of the Project under this PA:

- (1) Integrate probabilistic and deterministic methods for geohazard and environmental assessment (i.e. landslides, seismic, and groundwater contamination) developed at ESS with the risk assessment methods/tools developed at USGS;
- (2) Integrate the geohazard and risk assessment methods/tools with regional modelling methods/tools that generate future scenarios for, e.g., population growth, energy use, transportation use, etc.;
- (3) Integrate this suite of methods/tools into a joint ESS/USGS decision support framework;
- (4) Develop integrated risk assessments using (and testing) the methods/tools above in the Sea-to-Sky and Puget Sound regions by actively engaging local stakeholders; and
- (5) Test and apply the integrated ESS/USGS decision support system in a trans-border policy and risk analysis.

The resultant deliverables will be:

- (a) Enhanced methods/tools for decision support (focussed on risk assessment); and
- (b) Risk assessments using the outputs from a) for the Sea-to-Sky--Puget Sound area.

Funding Arrangements: Unless otherwise mutually agreed to in writing by the Parties, both Parties will contribute their own resources (personnel and funding) to the Project carried out under this PA and will therefore be responsible for their own expenses incurred as a result.

Intellectual Property: As per the "Agreement on the Allocation of Intellectual Property Rights, Interests and Royalties for Intellectual Property Created or Furnished under Certain Scientific and Technological Cooperative Research Activities" between the Government of Canada and the Government of the United States of February 4, 1997, Parties to this PA shall retain existing intellectual property that they bring to the Project. Intellectual property arising as a result of this Project carried out under this PA shall be jointly owned by both Parties. Products produced under the Project can be used, reproduced, modified, distributed and sublicensed by both Parties without any obligation or payment to the other Party.

Publications: All publications and announcements in connection to the Project carried out under this PA shall be made in the spirit of collaboration, with participation from both Parties, and will properly acknowledge the role (including co-authorship where appropriate) and contribution of the Parties.

Warranty: USGS and ESS make no representation or warranty respecting the outputs of the activities and/or deliverables arising from this PA, either expressly or implied by law or otherwise, including but not limited to, implied warranties or conditions of merchantability or fitness for a particular purpose.

General Provisions: All questions related to this PA arising during its term will be settled by the Parties by mutual agreement.

Duration and Termination: This PA will remain in effect until March 31st, 2007, at which time it may be extended by the mutual written agreement of the Parties. Changes or modifications to this PA shall be in writing and signed by the Parties. Either Party may terminate this agreement by giving the other Party thirty (30) days written notice. Upon termination, each Party shall immediately return the other Party's papers, materials, or other property held for the purpose of carrying out the Project.

Accepted on behalf of the USGS:

Accepted on behalf of the ESS:



Barbara J. Ryan
Associate Director for Geography
United States Geological Survey
Department of the Interior

Bob Ryerson
Director General
Canada Centre for Remote Sensing, ESS
Natural Resources Canada

09/23/04
Date

09/29/04
Date