AGREEMENT
BETWEEN
THE TAIPEI ECONOMIC AND CULTURAL REPRESENTATIVE OFFICE
IN THE UNITED STATES
AND
THE AMERICAN INSTITUTE IN TAIWAN
IN
THE AREA OF PROBABILISTIC RISK ASSESSMENT RESEARCH

WHEREAS subject to the availability of personnel, material, and appropriated funds, the American Institute in Taiwan (hereinafter referred to as the "AIT"), through its designated representative, the U.S. Nuclear Regulatory Commission ("USNRC"), is carrying out a research program in the area of Probabilistic Risk Assessment of Nuclear Power Reactors;

WHEREAS the Taipei Economic and Cultural Representative Office in the United States (hereinafter referred to as "TECRO") has an interest in access to information which has been developed and continues to arise from this program and wishes to collaborate with AIT;

Considering that the AIT and TECRO, hereinafter referred to as the Parties:

1. Have a mutual interest in cooperation in the field of safety research with the objective of improving and thus ensuring the safety of civilian nuclear installations on an international basis;
2. Recognize a need to equitably share both the resources resulting from this research and the effort required to develop those resources;
3. Have an interest in cooperating in the reliability, risk assessment, and other related areas of nuclear safety research;
4. Have been cooperating since January 1, 1999, under the terms of a five year Agreement between AIT and TECRO in the Area of Probabilistic Risk Assessment Research and have indicated their mutual interest in continuing this cooperation.

They have therefore AGREED as follows:

ARTICLE I - PROGRAM COOPERATION

The Parties, in accordance with the provisions of this Agreement and subject to applicable laws and regulations in force in the territories they represent, will join together for cooperative nuclear reactor safety research in the area of probabilistic risk assessment programs and other related program areas in nuclear reactor safety sponsored by the Parties.

ARTICLE II - FORMS OF COOPERATION

Cooperation between the Parties, through their designated representatives, may take the following forms:

A. The exchange of information in the form of technical reports, experimental data, correspondence, newsletters, visits, joint meetings, and such other means as the Parties

agree.

B. The temporary assignment of personnel of the designated representative of one Party or of the designated representative's contractors to the laboratory or facilities owned by the designated representative of the other Party or in which the designated representative of the other Party sponsors research. Each assignment will be considered on a case-by-case basis and may be the subject of a separate attachment-of-staff arrangement between the Parties.

C. The execution of joint programs and projects, including those involving a division of activities between the designated representatives of the Parties. Each joint program and project will be considered on a case-by-case basis and may be the subject of a separate agreement between the Parties, if determined to be necessary by either of the Parties to this Agreement or their designated representatives. Otherwise, it will be accomplished by an exchange of letters between the designated representatives of the Parties, subject at least to the terms and conditions of this present Agreement.

D. The use, by the designated representative of one Party, of facilities that are owned by or in which research is being sponsored by the designated representative of the other Party. Use of these facilities may be subject to commercial terms and conditions.

E. If a Party or its designated representative wishes to visit, assign personnel, or use the facilities owned or operated by entities other than the Parties to this Agreement or their designated representatives, the Parties recognize that prior approval of such entities will, in general, be required by the receiving Party or its designated representatives.

F. Any other form agreed between the Parties.

ARTICLE III - SCOPE OF AGREEMENT

The Parties, in accordance with the provisions of this Agreement, will undertake, through their designated representatives, a program for cooperative research in probabilistic risk assessment (referred to as COOPRA). This cooperative program will include technical information exchange in the areas of reliability, risk, and other related areas of research as mutually agreed by the Parties.

The specific elements and details of this cooperation are outlined in Appendix A, which is an integral part of this Agreement. The topics and programs outlined in Appendix A will be updated and adjusted periodically as the programs develop during the time this cooperation is in force.

ARTICLE IV - ADMINISTRATION OF THE AGREEMENT

A. The designated representatives of AIT and TECRO will each designate an Administrator to coordinate and determine the detailed implementation of this Agreement. These Administrators may, at their discretion, delegate this responsibility to the appropriate technical staff with respect to a given issue.

B. Information on matters related to organization, budget, personnel, or management may be restricted and not provided as part of the general information exchange under this Agreement.

C. AIT and TECRO, through their designated representatives, will endeavor to select technical personnel for assignments to these cooperative programs who can contribute positively to the programs. The technical personnel assigned for extended periods will be considered visiting scientists (non-salaried) within the programs in this Agreement and

will be expected to participate in the conduct of the analyses and/or experiments as necessary.

D. Each Party to this Agreement and its designated representatives will have access to all nonproprietary reports written by the technical personnel of the other Party's designated representative assigned to the respective programs that derive from the first Party's participation in those programs.

E. Administrative details concerning questions such as security, indemnity, and liability related to the assignees or trainees will be addressed in personnel assignment agreements between the respective Parties.

F. Travel costs, living expenses, and salaries of visiting technical personnel or personnel participating in program review meetings will be borne by their respective organizations.

ARTICLE V - EXCHANGE AND USE OF INFORMATION AND INTELLECTUAL PROPERTY

A. General

The Parties support the widest possible dissemination of information provided or exchanged under this Agreement, subject both to the need to protect proprietary or other confidential or privileged information as may be exchanged hereunder, and to the provisions of the Intellectual Property Addendum, which is an integral part of this Agreement.

B. Definitions (As used in this Agreement)

1. The term "information" means nuclear energy-related regulatory, safety, safeguards, waste management, scientific, or technical data, including information on results or methods of assessment, research, and any other knowledge intended to be provided or exchanged under this Agreement.
2. The term "proprietary information" means information created or made available under this Agreement which contains trade secrets or other privileged or confidential commercial information (such that the person having the information may derive an economic benefit from it or may have a competitive advantage over those who do not have it), and may only include information which:
   a. has been held in confidence by its owner;
   b. is of a type which is customarily held in confidence by its owner;
   c. has not been transmitted by the owner to other entities (including the receiving Party or its designated representative) except on the basis that it be held in confidence;
   d. is not otherwise available to the receiving Party, or its designated representative, from another source without restriction on its further dissemination; and
   e. is not already in the possession of the receiving Party or its designated representative.
3. The term "other confidential or privileged information" means information, other than "proprietary information," which has been transmitted and received in confidence and which is protected from public disclosure under the laws and regulations of the territory represented by the Party providing the information.

C. Marking Procedures for Documentary Proprietary Information

A Party receiving documentary proprietary information pursuant to this Agreement will respect the privileged nature thereof, provided such proprietary information is clearly marked with the following (or substantially similar) restrictive legend:

"This document contains proprietary information furnished in confidence under an Agreement dated _____ between the Taipei Economic and Cultural

Representative Office (TECRO) and the American Institute in Taiwan (AIT) and will not be disseminated outside these organizations, their designated representatives, consultants, contractors, and licensees, and concerned departments and agencies of the authorities in the territories represented by AIT and TECRO without the prior approval of (name of transmitting Party). This notice will be marked on any reproduction hereof, in whole or in part. These limitations will automatically terminate when this information is disclosed by the owner without restriction."

This restrictive legend will be respected by the receiving Party and proprietary information bearing this legend will not be used for commercial purposes, made public, or disseminated in any manner unspecified by or contrary to the terms of this Agreement without the consent of the transmitting Party.

D. Dissemination of Documentary Proprietary Information

1. In general, proprietary information received under this Agreement may be freely disseminated by the receiving Party without prior consent to persons within or employed by the receiving Party, and to concerned authorities in the territory represented by the receiving Party.
2. In addition, proprietary information may be disseminated without prior consent:
   a. to prime or subcontractors or consultants of the receiving Party, or its designated representative, located within the geographical limits of the territory represented by that Party for use only within the scope of work of their contracts with the receiving Party in work relating to the subject matter of the proprietary information;
   b. to domestic organizations permitted or licensed by the authorities of the territory represented by the receiving Party to construct or operate nuclear production or utilization facilities, or to use nuclear materials and radiation sources, provided that such proprietary information is used only within the terms of the permit or license; and
   c. to domestic contractors of organizations identified in D.2.b., above, for use only in work within the scope of the permit or license granted to such organizations;

   Provided that any dissemination of proprietary information under D.2.a., b., and c., above, will be on an as-needed, case-by-case basis, will be pursuant to an agreement of confidentiality, and will be marked with a restrictive legend substantially similar to that appearing in Article V. C., above.
3. With the prior written consent of the Party furnishing proprietary information under this Agreement, the receiving Party may disseminate such proprietary information more widely than otherwise permitted in subsections 1. and 2. The Parties will cooperate in developing procedures for requesting and obtaining approval for such wider dissemination, and each Party will grant such approval to the extent permitted by its policies, regulations, and laws of the territory it represents.

E. Marking Procedures for Other Confidential or Privileged Information of a Documentary Nature

A Party receiving under this Agreement other confidential or privileged information will respect its confidential nature, provided such information is clearly marked so as to indicate its confidential or privileged nature and is accompanied by a statement indicating:

1. that the information is protected from public disclosure by the authorities of the territory represented by the transmitting Party and
2. that the information is transmitted under the condition that it be maintained in confidence.

F. Dissemination of Other Confidential or Privileged Information of a Documentary Nature
Other confidential or privileged information may be disseminated in the same manner as that set forth in paragraph D., Dissemination of Documentary Proprietary Information

G. Non-Documentary Proprietary or Other Confidential or Privileged Information
Non-documentary proprietary or other confidential or privileged information provided in seminars and other meetings arranged under this Agreement, or information arising from the attachments of staff, use of facilities, or joint projects, will be treated by the Parties according to the principles specified for documentary information in this Agreement; provided, however, that the Party, or designated representative, communicating such proprietary or other confidential or privileged information has placed the recipient on notice as to the character of the information communicated.

H. Consultation
If, for any reason, one of the Parties or its designated representative becomes aware that it will be, or may reasonably be expected to become, unable to meet the non-dissemination provisions of this Agreement, it will immediately inform the other Party and its designated representative. The Parties will thereafter consult to define an appropriate course of action.

I. Other
Nothing contained in this Agreement will preclude a Party from using or disseminating information received without restriction by a Party from sources outside of this Agreement.

ARTICLE VI - FINANCIAL CONSIDERATIONS

TECRO will contribute in-kind technical information exchange indicated in Appendix A (Part II) to AIT and its designated representative's program described in this Agreement.

ARTICLE VII - DISPUTES AND WARRANTY OF INFORMATION

A. All costs arising from implementation of this Agreement will be borne by the Party, or designated representative, that incurs them except when specifically agreed to otherwise. It is understood that the ability of the Parties and their designated representatives to carry out their obligations is subject to the availability of funds. It is also understood that the terms herein agreed to represent feasible commitments according to the best understanding regarding resources and costs at the time of signature.

B. Information furnished by one Party to the other under this Agreement will be accurate to the best knowledge and belief of the Party supplying the information. However, the application or use of any information exchanged or transferred between the Parties under this Agreement will be the responsibility of the Party receiving the information, and the transmitting Party does not warrant the suitability of the information for any particular use or application.

C. Cooperation under this Agreement will be in accordance with the laws and regulations of the respective territories represented by AIT and TECRO. Any dispute or questions between the Parties concerning the interpretation or application of this Agreement arising during its term will be settled by mutual agreement of the Parties.

D. AIT and its designated representative make no warranties, whatsoever, for the ability or suitability of any code or other analytical technique to perform in any particular manner for any particular purpose, or to accomplish any particular task. AIT and its designated representative accept no liability for damages of any type that may result from the use of

codes or other analytical techniques provided under this Agreement.

ARTICLE VIII - OTHER CONSIDERATIONS

A. All AIT and designated representative computer codes disseminated under this Agreement are to be considered privileged information unless otherwise noted, are protected as such by AIT and its designated representative, and shall be treated likewise by TECRO and its designated representative. They are, in particular, subject to all of the provisions of this Article including the requirement for an agreement of confidentiality (see Article V) prior to dissemination, with the exception that they need not be marked with the restrictive designation. The codes are subject to this protection in both object and source forms and as recorded in any media.

B. AIT and its designated representative's codes and other related analytical techniques covered under this Agreement, and any improvements, modifications or updates to such codes or techniques, are for the purpose of reactor and plant systems safety research and licensing and will not be used for commercial purposes, or for other benefits not related to the study of reactor safety without the prior consent of AIT's designated representative. Neither will these codes nor any other related analytical techniques be advertised directly or by implication to obtain contracts related to the construction or servicing of nuclear facilities, nor will advertising imply that AIT or its designated representative has endorsed any particular analyses or techniques.

C. All reports published within the scope of this Agreement and all meetings held will be in English.

ARTICLE IX - FINAL PROVISIONS

A. This Agreement will enter into force upon signature, retroactive from January 1, 2004, and will remain in force for a period of five years.

B. The Parties enter into this Agreement with the understanding that reasonable allowances for normal delays will be made in completing the work. The Parties and their designated representatives have the right to utilize information provided under this Agreement after the expiration date; however, all information protected by provisions of this Agreement as proprietary, confidential, privileged, or otherwise subject to restriction on disclosure will remain so protected indefinitely unless mutually agreed otherwise in writing by the Parties.

C. A Party may terminate this Agreement after providing the other Party written notice of its intent to terminate 180 days in advance. The Party not terminating will notify the terminating Party before the effective date of termination if termination will result in the terminating Party receiving a disproportionate share of the expected benefit from this Agreement. Both Parties will endeavor to reach an equitable settlement of the matter through negotiation.

D. The Parties to this Agreement reserve the right to modify or extend the specific activities described in Appendix A within the intended scope of the Agreement upon written concurrence of their Administrators of their designated representatives.

E. If the portion of the research program of any Party that is pertinent to this Agreement is substantially reduced or eliminated, the technical scope described in Article III may be adjusted to substitute research of equivalent programmatic interest upon mutual agreement of the Parties.

IN WITNESS WHEREOF, the Parties have signed the present Agreement.

FOR THE AMERICAN INSTITUTE IN TAIWAN:	FOR THE TAIPEI ECONOMIC AND CULTURAL REPRESENTATIVE OFFICE IN THE UNITED STATES:
BY: _____	BY: _____
NAME: Barbara J. Schrage	NAME: _____
TITLE: Deputy Managing Director	TITLE: _____
DATE: _____	DATE: _____
PLACE: _____	PLACE: _____

APPENDIX A

PROBABILISTIC RISK ASSESSMENT PROGRAM ELEMENTS

Part I. AIT AND DESIGNATED REPRESENTATIVE RESEARCH PROGRAMS IN PROBABILISTIC RISK ASSESSMENT

The international cooperative research effort in probabilistic risk assessment (PRA), has been divided into four general areas of research: (1) Methods Development, (2) Analysis of Operating Events, (3) Development of Advanced PC-Based PRA Software, and (4) Regulatory Applications of PRA. The activities planned in each of these areas are broadly described in the following sections.

1. Methods Development

   It is generally recognized that the broad application of PRA to support regulatory decision-making requires methods improvements in a number of risk-significant areas. Among the areas needing improvement are treatment of fire risk, equipment aging, human reliability, and digital systems reliability and risk. AIT and its designated representative's programs in these areas are as follows:

   a. Fire Risk

      The overall purpose of the fire risk research program is to provide technical information in support of the AIT's designated representative's Risk-Informed Regulation Implementation Plan (RIRIP). In particular, the program will develop fire PRA methods, tools, data, results, and insights needed by AIT's designated representative to perform risk-informed decision making.

      The fire risk program includes activities that: 1) improve qualitative and quantitative understanding of the risk contribution due to fires in operating nuclear power plants (NPPs) and other facilities regulated by AIT's designated representative; 2) support ongoing or anticipated fire protection activities in AIT's designated representative's program offices, including the development of risk-informed, performance-based approaches to fire protection for operating NPPs; and 3) evaluate current fire PRA methods and tools and develop improved tools (as needed to support the preceding objectives).

      Previous work has led to: the development of improved methods, tools, and data in a number of areas, including circuit analysis, fire detection and suppression analysis, and uncertainty analysis; and to the development of fire PRA insights from reviews of past significant fire events. Ongoing work includes efforts to: develop comprehensive, state-of-art guidance for the conduct of fire PRA (and gain insights from plant-specific application; develop (in cooperation with a number of international organizations) an improved understanding of the uncertainties and limitations in current fire models; support ongoing fire-related regulatory efforts (e.g., the AIT's designated representative's fire protection Significance Determination Process and associated circuits inspections); and support development of the American Nuclear Society full power fire risk standard.

   b. Equipment Aging

The objective of this research effort is to assess the feasibility of using reliability-based physics models to incorporate the effects of aging into an integrated probabilistic risk assessment. Earlier work in this area assessed the feasibility of using this technique for the aging of piping. This work was published in NUREG/CR-5632, in the year 2001. Additional work in this area is the application of this technique to assessing the effect of aging on the failure of in-containment instrumentation and control cables during a loss of coolant accident. A report will be published in 2004 describing a method of assessing the probability of failure of these cables as a function of their age, and the inservice dose rate and temperature the cables are exposed to, with some numerical examples. Additional work will be dependent on obtaining the cooperation of a licensee to provide data on cable insulation materials and the environment of cables.

c. Human Reliability

The general objectives of the human reliability analysis (HRA) research are to: 1) develop improved human reliability analysis (HRA) methods, tools (including guidance), and data needed to support the designated representative's regulatory activities, including the broad implementation of risk-informed regulation; and 2) develop HRA insights to support the development of technical bases for addressing identified or potential safety issues.

Previous work has led to the development of ATHEANA, an improved method for HRA that focuses on the identification of error forcing contexts that increase the likelihood of human errors; the application of ATHEANA in the assessment of pressurized thermal shock (PTS) risk in support of efforts to re-examine the technical basis for 10 CFR 50.61, the PTS rule; and the development of an improved method for HRA quantification that explicitly treats uncertainties. Current work includes the continual use of ATHEANA in PRA applications (e.g., the fire requantification and steam generator tube rupture), the development of an improved method for HRA quantification that includes the use of evidence from a variety of sources; the development of a repository for human event reliability analysis (HERA), and the development of HRA guidance, i.e., an HRA Good Practices document, to support the use of the American Society of Mechanical Engineers (ASME) PRA standard.

d. Digital Systems Reliability and Risk

The increased use of digital instrumentation and control systems in nuclear power plants is introducing some unique reliability and risk issues. This project will be focused on providing methods for more quantitative, probabilistic assessments of digital systems reliability and their impact on overall plant risk, including hardware and software reliability and human-system interface issues. The staff is currently focusing on Failure Mode and Effect Analysis (FMEA) in support of developing reliability models of digital systems. The potential goals are finding a better definition of the reliability problems of digital systems and a better process of applying FMEA to digital systems. The future work is expected to be in the areas of software reliability and the failure rate data development.

2. Analysis of Operating Events

a. ASP Program

The Accident Sequence Precursor (ASP) Program was established by AIT's designated representative in 1979 in response to the Risk Assessment Review Group report (see NUREG/CR-0400, September 1978). The primary objective of the ASP Program is to systematically evaluate U.S. nuclear plant operating experience to identify, document, and rank operating events most likely to lead to inadequate core cooling and severe core damage (precursors), if additional failures had occurred.

The other objectives of the ASP Program are:

- To categorize the precursors by their plant-specific and generic implications,
- To support performance measures contained in AIT's designated representative's annual Performance and Accountability Report to Congress,
- To provide a measure for trending nuclear plant core damage risk, and
- To provide a partial check on probabilistic risk assessment (PRA)-predicted dominant core damage scenarios.

Events and conditions from licensee event reports, inspection reports, and special requests from AIT's designated representative's staff are reviewed for potential precursors. These potential precursors are analyzed, and a conditional core damage probability (CCDP) is calculated by mapping failures observed during the event onto accident sequences in risk models. An event with a CCDP or a condition with a change in core damage probability greater than or equal to 1×10^{-6} is considered a precursor in the ASP Program.

Plant-specific and generic insights and lessons learned from the ASP program, and other issues of interest that were encountered during the precursor analysis of operating experience (e.g., projection of unanticipated accident scenarios, risk exposure from precursors, and adequacy/availability of risk mitigation measures) are currently being exchanged in annual meetings with OECD countries.

b. SPAR Model Development Program

The Standardized Plant Analysis Risk (SPAR) models are the analysis tool used by staff analysts in many regulatory activities, including the ASP Program. The current set of SPAR models includes PRA models for internal initiating events during full power operation for each operating plant in the U.S. In addition, generic models for low-power and shutdown operations, and Level 2/large early release frequency (LERF) analysis are being developed for several plant categories. Currently, plant specific SPAR models are available only to AIT's designated representative and licensees.

c. Reactor Performance Data Collection Program and Industry Trends Program

The objectives of these programs are to:

- Collect industry data and produce industry trends for initiating events, common-cause failures, system and component reliabilities, and fire events
- Establish thresholds for the associated industry trends.
- Develop integrated industry indicators and thresholds for the above.
- Produce parameter estimates for use in the SPAR models and other risk analyses for initiating events, components, and common-cause failures.

AIT's designated representative is currently developing a new approach for industry trends. The proposed Baseline Risk Indicator for Initiating Events (BRIIE) uses industry data available from AIT's designated representative's programs, and is closely tied to risk, e.g., core damage frequency. The BRIIE uses a risk-significant subset of initiating events along with appropriate risk weights obtained from the various plant PRAs.

d. Development of Risk Based Performance Indicators

AIT's designated representative is developing a mitigating systems performance index (MSPI) to monitor the performance of six systems based on their ability to perform risk-significant functions. The index comprises two elements - system unavailability and system reliability. Plant-specific PRA models are used to calculate the contribution of component failures and maintenance unavailability to the index, which approximates the change in core damage frequency. AIT's designated representative is currently evaluating several technical issues arising from the pilot plant program and is also investigating the feasibility of implementing the MSPI as part of AIT's designated representative's Reactor Oversight Process.

3. Development of PC-Based PRA Software

The AIT's designated representative has developed and maintains the SAPHIRE (Systems Analysis Programs for Hands-on Analysis Integrated Reliability Evaluations) PRA computer code. SAPHIRE offers a state-of-the-art capability for assessing the risk associated with any complex system or facility. In particular SAPHIRE can be used to assess the risk associated with nuclear power plants in terms of core damage frequency (Level 1 PRA) and containment performance and radioactive releases (Level 2 PRA). SAPHIRE includes GEM, a separate subroutine that provides a simplified user interface for performing analysis using SPAR models, discussed above.

Both the continual advancement of the state-of-the-art in the use of computers and the continual expansion of the use of risk-information in the AIT's designated representative's decision-making, necessitate continual maintenance and improvement of SAPHIRE.

It is expected that this program will continue to provide software maintenance and user support and expand SAPHIRE capabilities by: decreasing size limitations (on the number of basic events, fault trees, sequences, end states, etc. handled by SAPHIRE), speeding up cutset generation and data analysis using multiple processors, adding work group project integration capability, and creating a web-page type user interface with the goal of reducing complexity without losing

SAPHIRE's functionality. Furthermore, SAPHIRE's documentation will be revised by issuing a new report for the Windows Versions 6 and 7. Finally, a SAPHIRE interface is being developed to be used in the Reactor Oversight Process.

4. Regulatory Applications of PRA

a. Changes to Reactor Regulations

AIT's designated representative has been actively pursuing the increased use of PRA methods, models, and insights to support regulatory decisions. Among the active programs are those which use PRA results to identify changes needed in reactor safety requirements. There are currently two regulations 10 CFR 50.44 "Standards for Combustible Gas Control Systems in Light-Water-Cooled Power Plants" and 10 CFR 50.46 "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water-Cooled Power Plants" that the staff is revising based on current risk information and research results. In September 2003, AIT's designated representative concluded rulemaking on 50.44 by issuing risk-informed revision to 50.44 which among other changes, eliminated the current requirements for hydrogen recombiners. Proposals are under consideration for risk-informing 50.46.

b. Regulatory Guidance on PRA

AIT's designated representative's staff has developed a draft regulatory guide (RG) that provides guidance to licensees on how to use PRA standards and industry peer review programs to demonstrate that the risk input to a risk-informed decision is technically defensible. This new RG will be accompanied by a Standard Review Plan (SRP) chapter. The main body of the RG provides guidance on the use of PRA standards and industry guidance by licensees to determine the level of confidence that can be afforded PSA insights/results in support of decision-making. AIT's designated representative's staff's endorsement of the standards and industry program will be the appendices to this RG. Specifically, Appendices A and B include the staff's position on the American Society of Mechanical Engineers (ASME) PRA standard and the Nuclear Energy Institute (NEI) peer review process respectively both addressing full-power, internal events, excluding internal fire, Level 1 and limited Level 2 (LERF) PRA. As the American Nuclear Society (ANS) PRA standards are issued on external hazards, low power and shutdown and internal fires, additional appendices will be added to the regulatory guide.

The draft RG was issued in November 2002 for public review and comment. A RG for trial use will be issued for pilot applications in February 2004. Pilot applications include different allowed outage time (AOT) for technical specifications changes and 10CFR 50.69.

c. Risk of Dry Cask Fuel Storage

AIT's designated representative is performing a pilot PSA of a spent fuel dry cask storage system, the Holtec International HI-STORM 100. This cask is being studied at a specific BWR site where the operations can be observed and

modeled. (Although developed for a specific cask at a specific site, the analytical models developed for this preliminary study can be modified and applied to other dry cask systems at other reactor sites.) During its service life, the cask has three operational modes - handling in the reactor building, transfer to the storage pad, and storage for 20 years. In each of these modes, accidents that could result in mechanical and thermal challenges to the cask and that have the potential to cause the release of radioactive material, are postulated. Available data are used to estimate accident frequencies. Engineering analyses are used to determine the stresses that would be imposed by the postulated events. Fracture mechanics and other engineering disciplines are used to determine the probability of a cask failing when subjected to postulated accident conditions.

The preliminary results of the PSA suggest that the risk to the public of the HI-STORM cask at the BWR plant is very low compared to the risk of accidents involving the core of operating nuclear power plants. Accidents that have a high conditional probability of failing the cask have a very low frequency. Furthermore, the consequences of the postulated accidents that can fracture the cask and the fuel are low because the energy driving the radionuclides from the fuel pellets is low and the inventory of radionuclides in the fuel pellets is relatively low compared to the reactor inventory. Accordingly, the risk, defined as the sum of the products of the accident frequencies and consequences, is very low.

d. Development of Risk Guidelines for Nuclear Materials and Waste Applications

AIT's designated representative's Commissioners have approved the plans to continue advancements in risk-informing activities in the nuclear materials and waste arenas as a means of improving the AIT's designated representative's Agency's focus on safety, effectiveness, and efficiency, and in reducing unnecessary regulatory burden. As work is completed in the risk informed activities in the nuclear materials and waste arenas, the information will be shared.

Part II. TECRO RESEARCH PROGRAMS IN PROBABILISTIC RISK ASSESSMENT

The international cooperative research effort in the territory represented by TECRO on Probabilistic Risk Assessment (PRA) has been divided into three general areas of research: (1) PRA Model Development, (2) Development of Risk Monitors, and (3) Regulatory Applications of PRA. The activities planned in each of these areas are broadly described in the following sections. The report of each ongoing activity will be issued in a couple of months after the associated project is completed. All reports will be written in Chinese, but an English version of the executive summary will be prepared upon request.

1. PRA Model Development

It is generally recognized that the broad applications of PRA to support regulatory and operational decision-making require comprehensive PRA models for operating nuclear power plants (NPPs) in the territory represented by TECRO. In 1983, PRA methodology was first introduced to the territory represented by TECRO, consulted by an U.S. company and reviewed by AIT's designated representative. PRA models for three operating NPPs have been completed: Kuosheng (GE BWR-6, 1983-1985), Maanshan

(Westinghouse 3-loop PWR, 1985-1993), and Chinshan (GE BWR-4, 1988-1991). Level II models were established for each NPP, including internal and external events (typhoon, earthquake, fire, and flooding) at power operation stage. The SETS code was adopted for model construction and a CDC mainframe was chosen as the quantification environment. Since plant-specific data were insufficient at that time, generic data were occasionally used. These reports were written in English.

Starting from 1994, a project co-sponsored by the designated representatives of TECRO, Taiwan Power Company (TPC), and Institute of Nuclear Energy Research (INER) of Atomic Energy Council (AEC), was initiated. The objectives of this project were (1) to revise the previous models and establish the mechanism to reflect the current plant condition, and (2) to construct a shutdown model for each operating NPP. For revision of the models at power, plant-specific data and design change from commercial operation up to the end of 1994 were collected and analyzed. This information along with the state-of-the-art knowledge was used to reconstruct the models of a PC-based software (NUPRA). These living PRA models were completed at the end of 1995. Due to the limited availability of manpower and other resources, only Level I analyses of internal, typhoon, and seismic events were included in this project. In June of 1997, shutdown models for three NPPs (Level I internal events only) were also completed. These PRA reports were written in Chinese.

Starting from 1997, a project co-sponsored by TECRO's designated representative (TPC) was initiated to refine the living PRA models. The objects of this project were to refine the shutdown models, the level II PRA analyses, and the fire and flooding analyses. The shutdown models were refined and tested on the recent plant outages to show the robustness for all foreseeable outage durations from 30 to 60 days. The level II analyses of PRA at power were updated including the CSET (Containment System Event Tree) and CPET (Containment Phenomena Event Tree) for each NPP. Fire and Flooding analyses were updated including the reconstruction of the event trees, fault trees and data. The refined living PRA models were peer reviewed in 2002.

A project co-sponsored by TECRO's designated representative, TPC, will be initiated in 2004 to incorporate suggestions from PRA peer reviews. Both the PRA models at power and shutdown will be refined.

2. Development of Risk Monitor

PRA modeling is generally recognized as a powerful tool in providing risk information to decision-makers. But due to the difficulty in understanding and interpreting the results generated from PRA model, usually only PRA experts or ones who have been involved in model development can easily manipulate the models. In order to promote the application of PRA on decision-making in NPPs, on the basis of the accomplished living PRA models on all of the three operating NPPs in the territory represented by TECRO, TECRO's designated representatives, INER and TPC, have collaboratively developed a risk monitor, the Taipower Integrated Risk Monitor (TIRM), for each NPP in July of 1997. The scope of this program was limited to PRA Level I, internal events only.

The main features of TIRM include: Top Logic Fault Tree adopted, risk profile display of 24 hours re-quantification for a new plant configuration in less than 10 minutes, using P&IDs as interface for configuration change (at power only), risk prediction for maintenance plan (each plan up to 96 hours). Other features include display of

historical risk profile, list of components under maintenance, status of Critical Safety Functions (CSF), qualitative Risk Manage Guideline (RMG), etc. Risk profile, CSF, and RMG for a shutdown schedule were also developed for each NPP.

Due to TIRM's robust function and its successful development, since June of 2001, the nuclear regulatory body in the territory represented by TECRO has requested that each NPP evaluate shutdown risk before TEPCO's designated representative, TPC, performs refueling outages and calculate the associated risk profile daily by the TIRM. However, for further risk-informed applications, only Core Damage Frequency (CDF) index involved in TIRM is not sufficient. The constraint features of TIRM's fault tree engine about how to add a powerful fault tree engine and about how to incorporate the LERF index become a challenge to the next generation of risk monitor. A new risk engine, INERISKEN, developed by INER was incorporated into the TIRM-2. By introducing the new powerful risk model solver INERISKEN, the TIRM-2 is designed to have more capabilities and to run faster than TIRM does. The TIRM-2 provides both CDF and LERF calculations by solving the new risk model with CDF model and LERF model within several minutes. In 2003, an advanced approach to construct a new risk model for TIRM-2 and to integrate LERF into TIRM-2 has been developed successfully.

Currently, the TIRM-2 at power and refueling outages has been released to all of the three operating NPPs for their usage. This powerful risk monitor, TIRM-2, has replaced TIRM to provide the basis of risk-informed applications. With the capability of performing CDF and LERF calculations, the TIRM-2 becomes a very helpful tool in monitoring the risk associated with various plant states and provides further information directly for risk-informed applications.

The risk engine, INERISKEN, is more powerful than NURELMCS (a commercial code) and is used to replace the NURELMCS in TIRM-2. A new risk measure, LERF, was resolved simultaneously in addition to CDF. Risk measures of both CDF and LERF can be resolved with a particular risk model that can only be recognized by INERISKEN. The results can be obtained within 5 minutes for any plant configuration. An enhanced version, the version 2.0 of TIRM-2 will be developed to comply with the changes in the updated living PRA models incorporating suggestions of PRA peer review in 2006.

3. Regulatory Applications of PRA

Since July of 1997, a risk-informed regulation project sponsored by the authorities of the territory represented by TECRO has been conducted by the staff of TECRO's designated representatives, INER and TPC. The objectives of 5-year project were: (1) to review the adequacy of the current regulations at shutdown operating conditions, (2) to establish regulatory review guidelines for On-Line Maintenance (OLM) applications, and (3) to establish regulatory review guidelines for applications of changes on the current licensing basis. The scope of the study includes the adequacy of the current operating procedures, maintenance schedule, and safety policy. Unlike the situation in the territory represented by AIT that treats OLM as one of the activities covered by the Maintenance Rule, the issue of OLM is treated as one of the changes of the current licensing basis in the territory represented by TECRO. Regulatory guidelines for changes of current licensing bases (e.g., OLM, changes of Surveillance Test Intervals and In-Service Testing) were developed during fiscal years 1999-2002. Pilot programs of RHR OLM for each NPP were endorsed by TECRO's designated representative, AEC, in 2003.

Risk-informed fire analysis applications in cable tray fire wrapping issues for Kuosheng and Maanshan NPPs are on-going. The study of pilot plant, Chinshan NPP was finished in 2003. An optimal alternative for Appendix R was suggested. A display system, RIFADISP, was also developed to show the important results of the study.

A pilot study of Risk-Informed In-service Inspection (RI-ISI) for RHR system of Kuosheng NPP was finished in 2003. Full scope studies of RI-ISI for all NPP will be preceded in the near future.

A table-based Significance Determination Process (SDP) of the Reactor Oversight Process (ROP) has been provided by AIT's designated representative to determine the safety significance of resident inspection findings. After a preliminary screening (Phase 1 of SDP) of inspection findings, an assessment process is conducted to obtain a risk approximation and to help the inspectors determine the risk significance (Phase 2 of SDP). TECRO's designated representative INER has developed a window-based tool with the SDP context to help the resident inspectors perform the Phase 2 SDP assessment and obtain the associated results more quickly and precisely. This SDP tool has released its beta version in 2004 and it is expected to be completed in 2005.

In addition to the progress of TIRM-2 and the window-based SDP tool, on-line maintenance of RHR systems for current three operating NPPs of TECRO's designated representative TPC has been approved in October of 2003. Dedicated PRA models mentioned above were established for all of the three nuclear plants by 1992. The third party, ABS Consulting of United Stated and Professor George Apostolakis of MIT have reviewed the accomplished living PRA reports on all of the three NPPs operating in the territory represented by TECRO in 2002. The regulatory body in the territory represented by TECRO has accepted the associated peer review reports in December of 2003 and is well satisfied with the PRA quality. Other subsequent risk-informed applications will be proposed soon. It is expected that a new era of risk-informed applications will be initiative in the territory represented by TECRO.

INTELLECTUAL PROPERTY ADDENDUM

Pursuant to Article V of this Agreement:

AIT and TECRO shall ensure adequate and effective protection of intellectual property created or furnished under this Agreement and relevant implementing arrangements. AIT and TECRO agree, through their designated representatives, to notify one another in a timely fashion of any inventions or copyrighted works arising under this Agreement and to seek protection for such intellectual property in a timely fashion. Rights to such intellectual property shall be allocated as provided in this Addendum.

I. SCOPE

A. This Addendum is applicable to all cooperative activities undertaken pursuant to this Agreement, except as otherwise specifically agreed by AIT and TECRO through their designated representatives.

B. For purposes of this Agreement, "intellectual property" shall have the meaning found in Article 2 of the Convention Establishing the World Intellectual Property Organization, done at Stockholm, July 14, 1967; viz., "'intellectual property' shall include the rights relating to:

- literary, artistic and scientific works,
- performances of artists, phonograms, and broadcasts,
- inventions in all fields of human endeavor,
- scientific discoveries,
- industrial designs,
- trademarks, service marks, and commercial names and designations,
- protection against unfair competition,

and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields."

C. This Addendum addresses the allocation of rights, interests, and royalties between AIT and TECRO and their designated representatives. Acting through their designated representatives, AIT and TECRO shall ensure that the other Party can obtain rights to intellectual property allocated in accordance with the Addendum by obtaining those rights from its own participants through contracts or other legal means, if necessary. This Addendum does not otherwise alter or prejudice the allocation between

- AIT and nationals of the territory represented by AIT which shall be determined by the laws and practices applicable in that territory or

- TECRO and nationals of the territory represented by TECRO which shall be determined by laws and practices applicable in that territory.

D. Disputes concerning intellectual property arising under this Agreement should be resolved through discussions between AIT and TECRO and their designated representatives. Upon mutual agreement of AIT and TECRO, a dispute shall be

submitted to an arbitral tribunal for binding arbitration in accordance with the applicable rules of international law. Unless AIT and TECRO or their designated representatives agree otherwise in writing, the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL) shall govern.

E. Termination or expiration of this Agreement shall not affect rights or obligations under this Addendum.

II. ALLOCATION OF RIGHTS

A. The designated representatives of AIT and TECRO shall be entitled to a non-exclusive, irrevocable, royalty-free license in all countries to translate, reproduce, and publicly distribute scientific and technical journal articles, reports, and books directly arising from cooperation under this Agreement. All publicly distributed copies of copyrighted work prepared under this provision shall indicate the names of the authors of the work unless an author explicitly declines to be named.

B. Rights to all forms of intellectual property, other than those rights described in Section II(A) above, shall be allocated as follows:

1. Visiting researchers, for example, scientists visiting primarily in furtherance of their education, shall receive intellectual property rights under the policies of the host institution. In addition, each visiting researcher named as an inventor shall be entitled to share in a portion of any royalties earned by the host institution from the licensing of such intellectual property.

2. (a) For intellectual property created during joint research, for example, when the designated representatives of AIT and TECRO, participating institutions, or participating personnel have agreed in advance on the scope of work, the designated representatives of AIT and TECRO shall be entitled to obtain all rights and interests in the territory they represent. For inventions made in the territory represented by AIT, AIT's designated representative shall have first option to acquire all rights and interests in territories not represented by AIT or TECRO. For inventions made in the territory represented by TECRO, TECRO's designated representative shall have first option to acquire all rights and interests in territories not represented by TECRO or AIT. If research is not designated as "joint research," rights to intellectual property arising from the research will be allocated in accordance with paragraph II.B.1. In addition, each person named as an inventor shall be entitled to share in a portion of any royalties earned by either institution from the licensing of the property.

(b) Notwithstanding paragraph II.B.2.(a), if a type of intellectual property is available under the laws of the territory represented by AIT but not under the laws and practices applicable in the territory represented by TECRO, the designated representative of AIT shall be entitled to all rights and interests worldwide. Notwithstanding paragraph II.B.2.(a), if a type of intellectual property is available under the laws and practices applicable in the territory represented by TECRO but not under the laws of the territory represented by AIT, the designated representative of TECRO shall be entitled to all rights and interests worldwide. Persons named as inventors of the property shall nonetheless be entitled to royalties as provided in paragraph II.B.2.(a).

駐美國台北經濟文化代表處與美國在台協會
之安全度評估研究領域合作計畫協定

鑒於美國在台協會（以下簡稱「在台協會」）之指定代表美國核能管制委員會（以下簡稱「核管會」）刻正就現有之人力、物力及受撥之資金，進行核能電廠安全度評估領域研究計畫；鑒於駐美國台北經濟文化代表處（以下簡稱「駐美代表處」）重視獲取此等計畫已發展出及繼續衍生之資訊，並希望與「在台協會」進行合作；鑒於「駐美代表處」及「在台協會」雙方考慮：(1)爲了改進並確保國際間民用核能設施之安全的目標，而對安全研究領域內之合作有共同的興趣；(2)認知到雙方分享來自研究的資源與共同負擔發展此資源所需投入的勞力；(3)在可靠度、安全度評估，及其他核能安全研究相關領域有共同合作的興趣；(4)雙方基於五年協定已自 1999 年 1 月合作進行安全度評估領域研究至今，亦顯示雙方有繼續此項合作之興趣；雙方爰議定條款如下：

第一條　計畫合作

依據本協定的條款以及在雙方各自司法管轄區內有效的適用法律及規範之下，協定雙方結合一起，在安全度評估(以下簡稱 PRA)領域的核反應器安全研究計畫及其他由雙方支持之核反應安全領域相關計畫進行合作。

第二條　合作形式

協定雙方之間的合作可採下列形式：

A、 以技術報告、實驗數據、書信、簡訊、訪問、聯合會議、以及其他經雙方同意的方法來交換資訊。

B、協定一方之指定代表或其承包單位任務派遣人員訪問協定另一方擁有的或其支助研究的實驗室或設施；各項派遣依個案來考量，可視同被訪問方之增附工作人員。

C、合作計畫的執行，包括涉及協定雙方之間工作的分工。若合作雙方之一方或其指定代表認爲有必要，各項合作計畫應依個案來考量，可針對單一合作計畫另訂協議。否則，依本協定之約定及條件，雙方可以換文方式達成合作。

D、 協定一方使用協定另一方或協定另一方正在支助研究的指定代表所擁有的設施；此種設施的使用，可能以商業約定及條件規範。

E、如果協定的任一方希望能訪問，或指派人員，或使用本協定雙方或其指定代表以外之實體所擁有或運轉的設施，協定雙方承認接待之一方通常需要獲得該實體的事前許可。

F、 任何其他經協定雙方同意的方式。

第三條　協定的範圍

協定雙方依照協定條款，將共同負責安全度評估研究領域合作計畫(以下簡稱 COOPRA)。此合作計畫將包括在可靠度、安全度與其他雙方同意的研究領域之技術資訊的交換。

合作的特定內容與細節列在附錄 A，屬於此合約的一完整部份。列在附錄 A 的題目與計畫將會隨著此一合作推動而更新與定期調整。

第四條　協定的管理

A、 「駐美代表處」與「在台協會」將個別指定一位代表以綜理及決定此一協定的詳細執行。此兩位代表可在其職責下對特定項目授權給適當的技術幕僚。

B、 本協定對於組織性，預算，人事，或管理的資訊可加以限制，並在此協定下不作爲提供一般資訊交換的一部份。

C、 協定雙方將致力於挑選能夠對計畫有正面貢獻的科技人員以指派參加這些合作計畫。指派參加合作計畫的雙方科技人員，將被認爲在本協定中計畫內的訪問學者（不支薪的），並將被預期參與執行雙方同意的分析及實驗。

D、 本協定的各方將可獲取由其合作一方指派參加本協定各個計畫的科技人員因參加這些計畫而提出的所有無智慧財產權的報告。

E、 有關受託者或受訓人員之安全、賠償金及義務等問題的管理細節將由雙方另訂人員指派協定規範之。

F、 互訪科技人員或參與計畫審查會議人員之交通費、生活費、及薪資將由派遣之一方負擔。

第五條　資訊及智慧財產權的交換與使用

A、一般原則

基於必須保護專有的、或其他機密的或有特殊利益的交換資訊，以及基於與本協定爲一體的智慧財產權附冊之規定兩項條件下，本協定雙方將支持在本協定下所提供或交換的資訊做最廣泛的分送。

B、定義

本協定適用之定義：

1. 所謂「資訊」一辭是指核能相關之管制、安全、保防、廢料管理、科學的或技術的數據、包括評估、研究的方法或結果的資訊，以及任何其他想要在本協定下提供或交換的知識。
2. 所謂「專有的資訊」一辭是指在本協定之下發展或獲得的資訊，包括貿易機密或其他特殊利益權的或機密性的商業資料（如此，擁有此資訊的個人可能獲得經濟利益或可能比其他沒有此資訊的人具有競爭優勢），同時僅包括下列的資訊：
   a. 已被其擁有者秘密持有；
   b. 是以某種被其擁有者習慣性秘密持有的型態；
   c. 未曾被其擁有者傳遞到其他實體（包括接受的一方），除非是在機密持有的基礎下。
   d. 接受的一方不能在沒有對其進一步分送加以限制以下，自其他來源獲得的，以及
   e. 尚未被接受的一方所擁有。
3. 用語「其他機密或特殊資訊」意指除了「專有的資訊」外，其他受到提供者當地國法律保護，且以機密方式傳送並取得的資訊。

C、專有文件資訊之標註程序

對於清楚附有下列（或相當類似的）限制文字之專有文件資訊，依本協定取得該文件資訊的一方，應尊重其專有性。

本文件包括由「駐美代表處」與「在台協會」事先於（日期）所簽協定中指的專有的資訊，未取得（提供資料者）同意，不得提供給包括協定所指定的組織、其代表、顧問、承包商、持照者以及「在台協會」和「駐美代表處」所代表之部門和機構以外的單位使用。此限制文字在文件全部或部份被複印時，得標註之。此限制在專有權者解除所有權後，自動失效。

取得專有文件者應尊重上述限制文字，未經提供者同意，不得將具此限制文字的專有文件用於商業目的、擅自加以公開化、或移作不合協定項目之用途。

D、專有文件資訊之使用

1. 一般而言，在本協定下所取得的專有資訊，取得機構人員、雇員或取得單位主權國領土內之相關機構，不需事先取得同意，可自由使用。
2. 除此之外，其他可在未預先取得同意下加以使用專有資訊的情況，包括：
   a. 供位於取得機構主權所及地區內之主要及次承包商或顧問使用，但僅限於和取得機構所協議之工作範圍並和此專有資訊內容相關之工作。

b. 供取得機構所核可或發照的國內機構使用，作爲建造或運轉核子生產或使用設施、核子物料和輻射源應用之用途，但此專有資訊僅限於許可或執照所核定的範圍。

c. 供第五條 D.2.b 段所認定之機構的國內承包商使用，但僅限於許可或執照所核定的範圍。

專有資訊在第五條 D.2.a,b 和 c 段的使用，是基於需求和個案考量，應依照協定的保密原則，將類似於第五條 C 段的限制文字在專有資訊上清楚註明。

3. 在取得專有權機構事先書面同意之情況下，取得機構對專有資訊之使用，可採較第五條第 D.1 及 D.2 段許可範圍更廣泛之方式。雙方應針對如何更廣泛地使用專有資訊，共同擬出一套申請和取得同意之作業程序，依各該國之政策、法規和法律的容許範圍予以核准使用。

E、其他機密性或特殊性文件資訊之標註程序

所取得之資訊若已清楚地註明其機密或特殊性，同時附有如下限制文字時，取得機構應尊重它的保密性質：

1. 該資訊應由給予機構，或其指定代表限制其對外公開；或由「駐美代表處」限制其提供在「駐美代表處」所代表的領土內的對外公開，
   以及
2. 該資訊之傳送必須保密。

F、其他機密性或特殊性文件資訊之使用

其他機密或特殊文件依前述第五條 D 段「專有文件資訊之使用」的方式使用。

G、非屬文件性質之資訊、其他機密或特殊資訊

使用於本協定所安排的演講、會議，或被工作人員當作附件、用於某設施或合作計畫等之專有資訊、其他機密或特殊資料，雖非屬文件性質，但仍均適用於本協定對文件資訊之處理原則；此係基於單方傳遞這些性質的，或其他機密的，或特殊的資訊，事先通知取得一方所傳遞資訊的特性。

H、諮詢

如因某種原因，某方或其指定代表知悉對於文件處理協定將或可能被侵犯時，應立即通知另一方及其指定代表。雙方並應協調出適當處理方式。

I、其他

不得要求任何一方禁止使用或傳遞非在本協定之內所取得之非受保護的文件資訊。

第六條　財務上的考慮

「駐美代表處」將提供「在台協會」及如本協定所述的指定代表計畫，有關附錄 A 第二部份所指的實質技術資訊。

第七條　資訊的爭議和保證

A、 執行本協定所須任何費用應由提出需求的一方支付，除非已言明同意由雙方分擔。簽約雙方有共識，簽約人履行義務之能力受限於資金可用之額度，雙方亦有共識於此處所言之「同意」意指依簽約時雙方資源與經費被充分了解情況下可實現的承諾。

B、任何一方依此協定，提供資訊給另一方時，其資訊應力求正確。然而依本協定應用與使用任何交換傳遞資訊之責任應屬接受資料之一方，傳送資訊之一方不保證所傳資訊適用任何特別的用途或應用。

C、依本協定所進行的合作不得違反雙方司法管轄區的法律和規定。任何因協定的解釋或執行所引

起的爭論，其解決須經由雙方同意。

D、「在台協會」與其指定代表不保證其任何程式或其他分析技術有能力或適合以任一特別方式執行任一特別目的，或完成任一特別工作。「在台協會」與其指定代表對使用本協定提供之程式或其他分析技術所可能產生的任何形式的損失不負任何責任。

第八條　其他考量

A. 所有依本協定所傳遞的「在台協會」及其指定代表之電腦程式，除非另有說明，應被視爲特殊資訊，「在台協會」及其指定代表以此方式保護之，「駐美代表處」亦應如此對待。此類資料特別受限制於本條款之規定並包括傳遞前需要一份機密協定(參考第五條)，但無需在資料中以嚴格之指定註記之。程式不論是原始檔或執行檔，亦不論存放於何種媒介上皆受本條款保護。

B. 本協定所包涵蓋之「在台協會」及其指定代表程式及其他相關分析枝術，包括對其改進、修改或更新資料皆限用於反應器與電廠系統之研究及申請執照，非經「在台協會」及其指定代不得用之於商業目的或其他無關反應器安全研究之利益用途。「在台協會」及其指定代表其他相關分析技術不可直接明示或暗示於宣傳廣告中以獲取核能設施建造或維修相關之合約,亦不得在廣告中暗示「在台協會」及其指定代表已認可任一特別的分析或技術。

C. 本協定及會議範圍內出版之報告書應以英文爲之。

第九條　最終規定

A、 本協定自簽約起追溯自 2004 年 1 月 1 日起生效，本協定有效期爲五年。

B、協定雙方有共識容許爲完成工作之合理正常進度落後。雙方在協定期限後有權使用此協定提供之資訊，然而依本協定規定保護之智慧財產權、機密、特殊文件或不得公開之資訊非經雙方以文字同意則仍受無限期保護。

C、任何一方欲終止協定，可於預定終止日 180 天前以書面通知另一方。倘若終止協定對提出終止協定的一方會造成原本從協定所享權益之損失，未提出終止要求的一方，會在終止有效日前知會欲終止協定的一方。雙方將經由協商致力取得公平之解決。

D、 協定下的任一方均保留修改或增加在協定範圍附錄 A 所述的特定活動的權利，但其更動必須有雙方管理人員的書面同意。

E、倘若任一方有關本協定之研究計畫之一部份被減少或取消，則在雙方同意下可修改第三款款所述之技術內容，得以同等計畫效益之研究取代之。

經由見証，雙方簽署目前的協定；

駐美國台北經濟文化代表處(TECRO)	美國在台協會(AIT)
簽　約　人：	簽　約　人：
姓　　名：	姓　　名：施藍旗
職　　稱：	職　　稱：副執行理事
日　　期：	日　　期：
地　　點：	地　　點：

附錄 A

安全度評估計畫內容

第一部、「在台協會」與其指定安全度評估代表研究計畫

安全度評估國際合作研究工作共分爲下列四方面研究領域：(1)發展方法論，(2)運轉事件分析，(3)進步型個人電腦安全度評估軟體的發展，與(4)安全度評估在管制上的應用。此四方面活動的規劃廣泛敘述於下面各節。

1. 發展方法論

一般認知安全度評估欲廣泛應用在支援管制決策，須從重要安全度領域的方法論改善著手。這些需要改善的領域包括防火安全度、設備老化、人因可靠度、數位控制系統之可靠度與風險。「在台協會」與其指定代表在這些領域的計畫如下述：

a. 火災風險

火災風險研究計畫的整體目的在於提供技術資訊，協助「在台協會」指定代表的「風險告知管制執行規畫」(RIRIP)。此計畫尤其將由「在台協會」及其指定代表建立管制單位執行風險告知決策制訂所需的火災 PRA 方法、工具、數據、結果與洞見。

火災風險計畫包括下列作業：1)從定性與定量層面，增進「在台協會」指定代表對於其管制的運轉中核能電廠與其他設施火災風險佔比的瞭解；2)佐助「在台協會」指定代表計畫部門進行中或預期的防火作業，包括建立運轉中核能電廠風險告知績效基準的防火作法；3)評估現有的火災 PRA 方法與工具，並建立改良工具(以提供前述目標所需之支援)。

此方面過往的研究已達成下列的成效：在某些領域改良研究方法，建立工具與數據；這些領域包括電路分析、火災偵測與抑制分析、不確定度分析，同時也藉由審查歷來重要的火災事件，建立安全度評估方面的洞見。目前的研究工作包括建立深入且先進的導引，以進行火災安全度評估(並獲取個廠應用上的洞見)；建立並增進我們對於現行火災模型在不確定度與限制上的瞭解(藉由與國際組織間的合作)；協助目前進行中的火災相關管制工作(例如「在台協會」指定代表的防火顯著性確立程序與相關電路視察)，並協助美洲核能學會(ANS)建立完整的功率運轉火災風險標準。

b. 設備老化

此一研究的目的在於評估使用以可靠度爲基礎的物理模式，以涵蓋老化效應並整合到安全度評估之內的可行性。此領域先前的工作已評估過使用此項技術於管路老化的可行性，並發表於 2001 年發行的 NUREG/CR-5632 報告。另一項工作則是應用此項技術，評估老化對於圍阻體內儀控電纜在喪失爐水事故環境下失效的影響，而預計於 2004 年發表的一份報告內，將會敘及以電纜歲齡以及電纜於營運期間接受的劑量率與所處溫度爲參數，評估電纜失效機率的方法。後續的工作將會視是否可取得電廠的合作，以提供電纜絕緣材料與所處環境的數據而定。

c. 人因可靠度

此計畫的總目標在於 1)發展改良的人因可靠度分析(HRA)方法，工具(包括導引)以及所需的數據，佐助指定代表的管制作業，包括普遍實施風險告知管制；2)建立人因可靠度分析的洞見，協助建立處理已發掘或潛在安全議題的技術基礎。

此方面過往的研究已建立了一套人因可靠度分析的改良方法，即 ATHEANA，此方

法著重在找出會增加人爲誤失可能的誤失驅動脈絡。此方面也應用 ATHEANA 於壓熱衝擊(PTS)風險的評估，有助於重新檢視 10 CFR 50.61「PTS 法規」技術基礎的工作，同時也建立一個改良的人因可靠度量化的方法，得以明確地處理不確定度。目前的研究包括持續在安全度評估應用中採用 ATHEANA(例如火災重新量化與蒸汽產生器破管)；建立改良的人因可靠度量化方法，以採納不同來源的證據；建立人因事件可靠度分析(HERA)的數據庫；發展人因可靠度導引，亦即 HRA Good Practice 文件，以支援採用美國機械工程師學會(ASME)的安全度評估(PRA)標準。

d. 數位系統的可靠度與風險

核能電廠在大量使用數位化儀控系統後，引介了一些獨特的可靠度與安全度議題。此專案將著重在爲數位系統可靠度與其對電廠整體風險的影響，提供更具量化方式的機率評估方法，包括硬體與軟體可靠度與人機介面等議題。指定代表的幕僚目前的工作著重在失效模式與效應分析(FMEA)，佐助建立數位系統的可靠度模型。規畫中的目標在於爲數位系統的可靠度問題尋求一個較佳的定義，並爲應用 FMEA 到數位系統提供一個較佳的程序。未來的研究預期將會集中在軟體可靠度與失效率數據的建立。

2. 運轉事件分析

a. 事故先兆事件(ASP)計畫

「在台協會」的指定代表爲了回應風險評估審查團報告(請另詳 NUREG/CR-0400，1978 年 9 月)，於 1979 年設立了事故先兆事件(ASP)計畫。ASP 計畫的首要目的在於針對美國核能電廠的運轉經驗進行常態性的評估，以確認出在出現額外的失效之後，最可能導致爐心冷卻失當及嚴重爐心受損的運轉事件(先兆)，並予以記錄與排序。

ASP 計畫的其他目的尚包括：

- 將先兆事件依據其對於個廠與一般電廠的意義，加以分類；
- 提供「在台協會」指定代表每年提報國會的「年度績效與課責報告」內的績效數字；
- 爲核電廠爐心受損風險的追蹤，提供所需的度量；
- 爲安全度評估所預測的爐心受損情節，提供部分的查核。

持照者事件報告內的事件與狀況、視察報告與「在台協會」指定代表幕僚的特殊要求等，都會接受審查，並從中尋找潛在的先兆事件。這些潛在的先兆事件會經過分析，藉由將事件過程所觀察到的失效對照到風險模型中的事故序列，計算出其條件爐心受損機率(CCDP)。當某事件的 CCDP，或某狀況所致的爐心受損機率變化大於或等於 1×10^{-6} 時，在 ASP 計畫內就會被認定爲是先兆事件。

由 ASP 計畫所得到的個廠或一般電廠的洞見以及經驗，以及在運轉經驗先兆事件分析過程所遭遇的相關議題(例如非預期事故情節的推測、先兆事件暴露的風險及風險減緩措施的有無與適當性)，目前已經在 OECD 會員國的年度會議中交流。

b.「標準電廠分析風險」(SPAR)模型建立計畫

「標準電廠分析風險」(SPAR)模型爲指定代表的幕僚分析員在許多管制作業(包括前述的 ASP 計畫)中所使用的分析工具。目前的 SPAR 模型組涵蓋了美國每一個運轉中核電廠的功率運轉廠內肇始事件，除此之外，某些電廠類型在低功率與停機期以及二階/早期大量輻射外釋頻率(LERF)分析的一般模式，也都在發展之中。目前個廠特定的 SPAR

模型僅供「在台協會」指定代表與持照者使用。

c. 反應器績效數據蒐集計畫與工業趨勢計畫

這些計畫的目的在於：

- 收集工業數據並構建肇始事件、共因失效、系統與組件可靠度與火災事件的工業趨勢；
- 建立工業趨勢相關的門檻；
- 發展工業趨勢的整合指標與門檻；
- 提出參數估計值，以供 SPAR 模型，及其他肇始事件、組件與共因失效的風險分析使用，

「在台協會」指定代表目前正建立一套工業趨勢的新作法，此作法所建議使用的「肇始事件基準風險指標」(BRIIE)係採用目前「在台協會」指定代表計畫所得的工業數據，同時與風險，亦即爐心受損頻率之間有緊密的關連。BRIIE 除了採用肇始事件中具風險顯著性的部分之外，也採用由不同電廠安全度評估所獲得的適當風險權重。

d. 風險基準績效指標的建立

「在台協會」的指定代表正建立一套救援系統績效指標(MSPI)，依據六種系統執行風險顯著功能的能力，監測它們的績效。該項指標包括兩個要素：系統不可用度與系統可靠度，並採用個廠的安全度評估模型，計算組件失效與維修不可用度對於該項指標的影響，並以此近似求得爐心受損頻率的變化。「在台協會」的指定代表目前正在評估由先導電廠計畫中產生的若干技術議題，同時也研究在「在台協會」指定代表「反應器監管程序」中實施 MSPI 的可行性。

3. 個人電腦安全度評估軟體的發展

「在台協會」指定代表發展並維護安全度評估電腦程式 SAPHIRE (全名爲「實用分析整體可靠度評估的系統分析程式」)。SAPHIRE 程式提供先進的風險評估能力，可以評估任何複雜系統或設施的風險。SAPHIRE 程式尤其可以應用在核能電廠相關的風險評估上，計算爐心受損頻率(一階安全度評估)及圍阻體性能與輻射外釋(二階安全度評估)。SAPHIRE 程式包含 GEM 子程式，此程式提供了簡化的介面，供使用者執行上述 SPAR 模型的分析。

電腦應用先進技術上的持續進步，乃至於「在台協會」指定代表持續擴充風險資訊在決策制訂上的應用，均使 SAPHIRE 程式的持續維護與改進，成爲必要的一項工作。

此項計畫預期將會持續提供 SAPHIRE 程式的軟體維護與使用者支援，並擴充其能力，相關的工作包括降低容量上的限制(SAPHIRE 程式所能處理的基本事件、故障樹、事故序列、終態等的數目)，利用多工處理器加速失效組合的產生與數據分析，增加工作小組專案整合的能力，以及建立網頁型式的使用者介面，在不喪失 SAPHIRE 程式功能之下，達成降低複雜度的目標。此外，SAPHIRE 程式文件將透過其視窗第六版與第七版新報告的發行來修訂。最後，SAPHIRE 介面正在建立當中，將來可供「反應器監管程序」應用。

4. 安全度評估的管制應用

a. 反應器法規的變更

「在台協會」的指定代表一直主動尋求增加安全度評估方法、模型與洞見於管制決策上的應用，相關的計畫包括利用安全度評估結果，確認反應器安全要求中需要變更的部分。目前幕僚正依據現有的風險資訊與研究結果，修改兩項法規，分別是 10 CFR 50.44「輕水式反應器可燃氣體控制系統標準」以及 10 CFR 50.46「輕水式反應器緊急爐心冷卻系統可接受準則」。2003 年 9 月，「在台協會」的指定代表完成了 50.44 的風險告知修訂，發佈新的風險告知版本，在法規的變更當中包括免除了現有關於氫氣再結合器的要求。50.46 法規風險告知變更的相關建議也正在考量當中。

b. 安全度評估的法規指引

「在台協會」的指定代表建立了一項「法規指引」(RG)草案，提供持照者採用安全度評估標準與工業同行審查計畫的導引，以展現其在風險告知決策時所使用的風險輸入在技術上令人信服。此一新的法規指引也將隨同發行「標準審查辦法」(SRP)的章節。該法規指引的主體提供持照者採用安全度評估標準與工業導引等相關的導引，以決定安全度評估洞見/結果在決策制訂上所能提供的信賴程度。「在台協會」指定代表的幕僚在該法規指引內，也爲安全度評估標準與工業計畫進行背書。特定而言，附錄 A 與 B 分別包含了幕僚對於美國機械工程師學會(ASME)的安全度評估標準與美國核能協會(NEI)同行審查程序的立場，此兩個標準與程序均處理了功率運轉與廠內事件(但尚未包括廠內火災)的一階與部分二階(指 LERF)的安全度評估。在美洲核能學會(ANS)發行廠外危害、低功率與停機期、廠內火災的安全度評估標準之後，幕僚將會在法規指引內對應加入新的附錄。

該法規指引草案在 2002 年 11 月發行，供公眾審查與提出意見。2004 年 2 月將會發行試用版的法規指引，進行先導應用。此先導應用包括運轉規範中的允許停用時間(AOT)變更以及 10 CFR 50.69。

c. 乾式燃料儲存槽的風險

「在台協會」指定代表，正進行 Holtec International 公司 HI-STIRM 100 型用過燃料乾式儲存槽的先導安全度評估。此型的儲存槽刻正於特定的沸水式電廠(BWR)廠址進行研究，觀察其運作情形並加以模擬。(雖然該分析模型是針對特定廠址的特定儲存槽而建立，但經過初步研究後所建立的模型仍可經過修正，並應用到其他反應器廠址的乾式儲存槽系統上。)儲存槽的營運壽期之內會經歷三個運轉模式，包括反應器廠房內的處置、轉移至儲存台的作業與歷經 20 年的儲存。在每一種運轉模式下，分析時假想了可能造成儲存槽機械與溫度等挑戰的事故，這些事故均有造成輻射物質外洩的可能，並利用現有的數據，估算事故發生的頻率。假想事件加諸在儲存槽的應力則是採用工程分析來決定，並利用破壞力學與其他工程專業，決定儲存槽在受到假想事故狀況時失效的機率。

該安全度評估的初步結果在與運轉中核電廠爐心事故的風險比較之後，顯示該 BWR 電廠 HI-STORM 儲存槽對於公眾的風險相當的低。會使儲存槽條件失效機率變高的事故，相對而言發生的頻率很低。此外，可能造成儲存槽與燃料破裂的假想事故，其後果也不嚴重，因爲驅使輻射核種自燃料丸外釋的能量很低，且燃料丸內的輻射核種存量相較於反應器內的存量也相對爲低。因此，考量各種事故頻率與後果相乘總和之後的風險是非常低的。

d. 建立核子物材與廢料應用的風險導引

「在台協會」指定代表之下的核子物材安全與防衛署(NMSS)目前正評估後續作業中

的某項使用者請求。近期內的作業預期會包括採用 NMSS 的風險指標數字，例如對電廠工作人員的風險以及一般公眾的風險，另外也將進行其他形式的儲存槽設計與廠址的風險評估。

第二部、駐美國台北經濟文化代表處的安全度評估研究計畫

TECRO 代表領地內的 PRA 國際合作研究涵蓋三個研究領域：(1)安全度評估(PRA)模型的發展，(2)核能電廠風險監視系統的發展，(3)PRA 在管制上的應用。在此三領域規劃中的活動泛述如下節；進行中的研究活動之報告在計畫完成後數月內即會出版。所有的報告以中文撰寫，但將視需求提供英文版執行摘要的。

1. 安全度評估模式的發展

TECRO 代表領地內已普遍體認到運轉中的核能電廠如欲廣泛應用 PRA，支持管制和運轉決策，有賴於完備的 PRA 模型。1983 年 TECRO 代表領地內首次引介 PRA 方法論，並邀美國一家公司爲顧問並由在台協會指定代表審查。目前已完成所有三座運轉中核電廠的 PRA 模型；包括國聖核二廠(GE 公司，BWR-6 電廠設計，1983 至 1985 年)、馬鞍山核三廠(西屋公司，三迴路壓水式反應器，1985 至 1993 年)、與金山核一廠(GE 公司，BWR-4 電廠設計，1988 至 1991 年)。各核能電廠均完成二階 PRA 模型，包括功率運轉階段廠內與廠外事件(颱風、地震、火災與水災)。模式建立採用 SETS 程式在 CDC 主機上運跑。因個廠特定數據在當時並不充份，有時需使用一般數據。上述報告均以英文撰寫。

自 1994 年起，由台電公司與行政院原子能委員會核能研究所共同合作進行一項計畫。此計畫目的在於(1)更新先前 PRA 模型並建立反映電廠現況的機制，及(2)建立各運轉中核能電廠的停機 PRA 模型。就更新功率運轉中的模型而言，個廠特定數據及設計變更資料的收集及分析的範圍涵蓋到商業運轉開始到 1994 年。上述資訊配合先進知識，均應用在個人電腦軟體 NUPRA 上，重建活態 PRA 模型，相關模型在 1995 年底完成建立。由於人力及其他資源的限制，此一計畫僅包括一階廠內、颱風與地震事件分析。1997 年 6 月此計畫也完成三座核能電廠大修時期 PRA 模型(僅包括一階之廠內事件)。這些 PRA 報告均爲中文版。

此外自 1997 年開始，TECRO 指定代表之一，台電公司出資並與另一指定代表核能研究所合作，成立一項精進活態 PRA 模型的計畫。此計畫的目標在於精進停機 PRA 模型、二階 PRA 分析、火災與水災分析。停機模型經過精進之後，曾以當時電廠的實際大修爲條件進行測試，以顯示在可預見的 30 天到 60 天的大修期長之下，模型仍然可以穩健適用。功率運轉二階 PRA 分析更新的部分包括各核電廠圍阻體系統事件樹(CSET)與圍阻體現象事件樹(CPET)。火災與水災分析的更新則包括重建事件樹、故障樹與數據。上述的活態 PRA 模型在完成精進之後，並於 2002 年進行過同行審查。

2004 年，TECRO 指定代表之一，台電公司將出資並與另一指定代表核能研究所合作，進行 PRA 模型同行審查後的更新計畫。屆時功率運轉期與大修停機期的 PRA 模型均將進一步依據同行審查意見，進行更新與精進。

2. 核能電廠風險監視系統的發展

PRA 模型通常可視爲一有效工具，提供風險資訊給決策制訂者，但由於 PRA 模型

產生的結果在了解與詮釋的困難，通常僅有 PRA 專家或參與模型發展的人方能容易處理模型。爲了提昇核能電廠的 PRA 應用，TECRO 指定代表，核能研究所與台電公司所共同合作，在 1997 年 7 月成立計畫，建立各電廠專屬的風險監視系統，並稱之爲「台電整體風險監視系統」(TIRM)。計畫範圍當時僅限於一階之廠內事件的 PRA。

TIRM 的主要特色包括：採用頂端邏輯故障樹、能在 10 分鐘內再量化一個新的電廠組態並顯示 24 小時的風險輪廓圖、使用管路與儀器圖作爲組態改變的介面(僅限功率運轉)、維修規畫的風險預測(各個計畫可到 96 小時)；其他特色尚包括歷史風險輪廓圖顯示、維修組件的列表顯示，緊要安全功率(CSF)的狀態，定性風險處理導則(RMG)等。此外每個電廠也建立了大修停機排程的風險輪廓、CSF、RMG 等的計算與顯示功能。

由於發展成功後的 TIRM 功能穩健，TECRO 代表之領地的核能管制單位，即行政院原子能委員會，自 2001 年 6 月開始要求每一個核電廠均應在大修開始前評估停機風險，同時應以 TIRM 計算每日的大修風險輪廓。然而若要進一步進行風險告知應用，僅包含爐心受損頻率(CDF)指標的 TIRM 在使用上略顯不足。由於 TRIM 受限於故障樹引擎，無法計算早期大量輻射外釋(LERF)指標，因此如何在 TIRM 內加入功能強大的故障樹引擎並納入 LERF 的計算，遂成爲第二代風險監視系統的挑戰。爲此，TECRO 指定代表之一，核能研究所研發了一套新的風險模式求解引擎，INERISKEN，並將其植入到第二代的 TIRM 系統，即 TIRM-2 之內。在引入新的風險引擎 INERISKEN 之後，TIRM-2 設計的功能增加，運算速度也優於第一代的 TIRM。TIRM-2 可以在至多幾分鐘之內完成新 CDF 模型與 LERF 模型的求解，提供 CDF 與 LERF 的計算值。在 TIRM-2 內建構新的風險模型並整合 LERF 計算能力的相關工作已在 2003 年順利完成。

目前功率運轉與大修停機期的 TIRM-2 已正式移轉到三座運轉中核電廠，以供使用，功能強大的 TRIM-2 已成功取代了 TIRM，提供風險告知應用的基礎。由於 TIMR-2 具備了計算 CDF 與 LERF 的能力，成爲監測不同電廠狀態風險的有力工具，並可進一步直接提供風險告知應用所需的資訊。

TIRM-2 所使用的風險模式求解引擎 INERISKEN，在功能上亦優於原 TIRM 所使用的 NURELMCS 商業程式，可近乎同時求解出 CDF 與 LERF。INERISKEN 係透過一個特殊的風險模型來求解 CDF 與 LERF 等風險度量數字，任何電廠組態均可在 5 分鐘之內得到相關結果。在 2006 年活態 PRA 模型完成同行審查意見的更新之後，TIRM-2 也將隨之更新，成爲 TIRM-2/2.0 版。

3. PRA 的管制應用

自 1997 年 7 月開始， TECRO 指定代表的核能研究所同仁執行了一項由行政院原子能委員會贊助的風險告知管制計畫。此計畫爲期 5 年，其目的如下：(1)審查目前大修期間管制規範的適切性，(2)建立線上維修(OLM)管制審查導則，(3)建立欲申請目前執照基準變更的管制審查導則。研究範圍包括運轉程序書、維護排程及安全政策的適切性。在 AIT 代表之領地雖然「維護法規」可以涵蓋 OLM 的情況，但在 TECRO 代表之領地 OLM 反而被視爲是現行持照基礎的變更。此項研究工作在 1999 年到 2002 年間，陸續建立了現行持照基礎變更的審查導則(例如 OLM、偵測試驗週期、與營運期間測試)，而各電廠 RHR 系統線上維修的先導計畫，也於 2003 年獲得 TECRO 指定代表，行政院原子能委員會的背書。

風險告知火災分析應用於國聖電廠與馬鞍山電廠的電纜托盤防火包覆議題，是目前進行中的計畫之一。相關先導電廠，即金山電廠，的研究工作已在 2003 年完成，當時也提出 10 CFR 50 附錄 R 豁免的替代選項建議；該研究也建立了一個展示系統，RIFADISP，以展示研究相關的重要成果。

另一項有關於國聖電廠 RHR 系統風險告知營運期間檢測(RI-ISI)的先導研究業已於 2003 年完成，預期在未來將會進行完整範圍的 RI-ISI 研究。

AIT 指定代表在其「反應器監管程序」(ROP)中採用了以表格爲基礎的「顯著性確立程序」(SDP)，以決定駐廠視察判定的風險顯著性。SDP 在第一階段先針對視察判定進行初步的篩濾，方在第二階段進行評估以獲得視察判定的近似風險，並協助視察員確立其風險顯著性。TECRO 指定代表，核能研究所在此方面已按照 SDP 的邏輯脈絡，發展了一套視窗版的 SDP 工具，目的在協助駐廠視察員進行第二階段的 SDP 評估，並能更迅速且精確地得到相關的結果。此一 SDP 工具會於 2004 年發行試用版，並預期在 2005 年可以完成。

除了在 TIRM-2 與視窗版 SDP 工具上的進展之外，TECRO 指定代表，台電公司目前三座運轉中核電廠的 RHR 系統線上維修已於 2003 年 10 月獲得管制單位的許可。如上所述，此三座電廠專屬的 PRA 模型係在 1992 年建立，這些 PRA 模型在 2002 年已經由美國 ABS 顧問公司與麻省理工學院的 George Apostolakis 教授所組成的第三者團體，完成了同行審查工作。TECRO 代表之領地的核能管制單位，原能會，於 2003 年 12 月正式接受相關的同行審查報告，表達對 PRA 品質的滿意。後續的風險告知應用很快將會陸續提出，預期 TECRO 代表之領地即將展開風險告知應用的新紀元。

智慧財產附冊

依照本協定第五條款：

協定雙方應確保適切且有效的保護在此協定下及爲履行本協定所作之相關安排所創造或改造之智慧財產權。在本協定下雙方同意將新發明或新版權事務及時通知對方，並且及時爲此種智慧財產尋求智慧財產權之保護。本附冊規定智慧財產權益之配置。

Ⅰ、範圍

A、本附冊適用於依據本協定所執行的所有合作性活動，除非雙方或雙方之指定代表另有協議。

B、本協定所指之"智慧財產權"應含括在 1967 年 7 月 14 日斯德哥爾摩成立之世界智慧財產權組織公約上第二條權利，換言之，應包含下列作爲之相關權利：

- 文學的、藝術的和科學的著作
- 藝術家之公開演出，視聽著作及廣播
- 由人的努力而產生之各項發明
- 科學上之新發現
- 工業上之設計
- 商標，服務標誌，商業名稱及標示
- 反對不公平競爭之保護

及由工業，科學，文學或藝術範疇中之智慧活動所產生之一切其他權利。

C、本附冊講明雙方權利，利益和權利金的配置問題，依據本附冊應保證對方能夠獲得另一方配置的智慧財產的一切權利。如有需要，可透過合約或其他合法方法從參與者處獲取這些權利。本附冊對權利與義務的配置並不因在台協會和其所代表的領土內及法律統治下的民族而有所改變或存有偏見。本附冊對權利與義務的配置並不因駐美代表處和其所代表的領土內及法律，風俗規範統治下的民族而有所改變或存有偏見。

D、在此協定之下有關智慧財產之爭議應透過相關的參與機構，「在台協會」與「駐美代表處」雙方或雙方的指定代表來討論解決。依雙方相互的協定，爭議應送到仲裁法庭根據可適用的國際法做成有束縛力的公斷。除非「在台協會」與「駐美代表處」雙方或雙方的指定代表另簽有協議書，否則本附冊受聯合國國際貿易法委員會(UNCITRAL)之國際仲裁法規之約束。

E、本附冊所規定之權利與義務不會因本協定之中止或過期而受影響。

Ⅱ、權利之配置

A、在此協定下，因雙方合作而直接產生的，科學上的及技術上的期刊文章，報告和書本，各方應被授權在世界各國家都擁有翻譯，重置和散播之非獨佔性的，不可取消的，不用付權利金的執照。凡是在本條款之下，對有版權的著作所印製之傳播用影本，都必須標示原著作人之姓名，除非是該著作人明顯地表示不要標示其姓名。

B、除了在本附冊Ⅱ(A)中所提及的權利外，其他各種形式之智慧財產權，應配置如下：

1. 訪問研究學者，例如，以推廣教育爲主要訪問目的的科學家，應受到邀請機構的

政策下給予智慧財產權之保護。該訪問研究者若是智慧財產的創作人，應該分到邀請機構因授權該智慧財產所得的部分權利金。

2.(a)在雙方合作期間所創作之智慧財產，各方應享有在其主權領土內所有的智慧財產權利與利益。該智慧財產被創作之所在地的一方應享有率先在第三國申請所有的智慧財產權利與利益。若該研究並不是”共同研究”的項目，該項智慧財產之權利將依據本附冊Ⅱ、B.1 段中之規定辦理。

該訪問研究者若是智慧財產的創作人，應該分到邀請機構因授權該智慧財產所得的部分權利金。

(b)雖然本附冊Ⅱ、B.2.(a)段中有規定，但如果該智慧財產在其中一方有法律保護，而另一方尚未立法保護時，該智慧財產權利與利益之保護應註名爲世界性的。智慧財產創作人應享有本附冊Ⅱ、B.2.(a)段中所規定之權利金。