核電廠重要安全系統電腦失效分析計畫 (OECD/NEA COMPSIS)

黃揮文

日期：96年8月9日

Revision: July 31, 2007

大綱

- COMPSIS計畫簡介
- 第一至三次COMPSIS會議
- 第四次COMPSIS會議
- 第五次COMPSIS會議
- 結論

COMPSIS計畫簡介

- 經濟合作暨發展組織核能署(OECD/NEA)主辦『安全重要電腦系統』(Computer-based System Important to Safety，簡稱COMPSIS)會議。
- COMPSIS計畫成立之主要目的，在鼓勵各參與國藉由多邊合作的架構，進行核能電廠安全重要電腦系統軟硬體失效事件(COMPSIS事件)的蒐集與分析，並互相交換經驗及資訊。
- 國內派員與會，希望透過COMPSIS計畫的參與執行，有助於深入瞭解與會各國數位儀控系統失效事件肇因及其預防機制，裨益國內核能安全的提昇。

COMPSIS計畫簡介

- 期程3年，2005年 ~ 2007年
- 參加會員國：台灣、美國、日本、韓國、瑞典、瑞士、芬蘭、匈牙利、斯洛伐克、德國，計十國。
- 資料交換中心(Clearinghouse, CLH)負責建立與維護資料庫，由挪威 Institute for Energy Technology (IFE)擔任。
- 年費：10000歐元
- 台灣由原能會、核研所、台電公司共同參與，並均攤會費
- 台灣之national coordinator為原能會陳宜彬處長

COMPSIS計畫簡介

- 核能電廠安全重要電腦系統軟硬體失效事件的蒐集與分析，可作為軟體安全分析之參考依據。
  - Licensee Event Report (LER) - USNRC
  - Incident Reporting System (IRS) - IAEA
  - COMPSIS
- LER與IRS並非以數位儀控系統失效為主要考量，因此對失效事件的描述以核能電廠系統為核心，因此常未能記錄數位儀控系統失效細節。

COMPSIS計畫簡介

- 三大主要工作-
  - 編碼導則
  - 資料庫/使用者介面
  - 資料分析
- 台灣先後與瑞典/CLH/匈牙利共同負責資料分析工作

第一至三次COMPSIS會議

	日期	會議地點	台灣代表
第一次 COMPSIS會議	2005年 3月9～11日	法國巴黎	原能會莊長富科長 核研所郭成聰副組長
第二次 COMPSIS會議	2005年 9月26～27日	挪威哈登 (Halden)	台電公司核發處儀電課陳文華課長 清雲科技大學易俗博士 核研所郭成聰副組長
第三次 COMPSIS會議	2006年 4月19～21日	韓國大田	核研所郭成聰副組長、黃揮文

第一至三次COMPSIS會議
資料蒐集/編碼導則

第一次COMPSIS會議	本次會議決定使用以IAEA/NEA IRS (incident reporting system)為基礎的編碼導則(coding guidelines)格式作為COMPSIS計畫電廠持照者事件報告(LER)層次資料編碼導則的參考依據。
第二次COMPSIS會議	編碼導則工作小組陸續推出第1版第2版編碼導則。考量在第三次COMPSIS指導小組會議中，舉辦一場研討會，處理第2版編碼導則留下的問題。
第三次COMPSIS會議	由於編碼導則及資料庫/使用者介面設計需優先確立，各會員國方能據以輸入失效事件，故本次會議特別利用一天的時間詳細討論編碼導則內容，並配合修正資料庫/使用者介面格式，會後列出28件待處理事項。

Appendix 5. Decisions about the required changes in the GUI and the CG during the 3rd COMPSIS SG meeting

No	Topic	Decision	Comment, actions	Responsible
1	**Changing of event identifiers should be possible – GUI / CG**	**AGREED**	**The national coordinators may change an identifier version number (rev 0,1,2..) – this to happen through the CLH by using a separate database (procedure to be proposed by the CLH)**	**CLH**
	• • •			
17	**Add a fault type for configuration management fault**	**See 20**		**SG**
	• • •			
20	**Correspondence between the 2003 CG (5.1.5 and 5.1.6 and the fault types in the new ones need to be cross-checked) – the EMI types of faults should not be missed (see number 17 and 18 also)**		Mr. Hamar **to help the CH to add again those parts of the old CG coding that is now missing from the new ones. Otherwise, the improvements in the new CG have to be kept. The proposal to be sent out by the** 30 May 2006 **to the SG. The SG to respond by** 15 June 2006. **This is a critical task.**	**SG+CLH**
	• • •			
28	**Appendix A in the coding guidelines**	**Proposal to be made**	Dr. Lindner **to make a proposal about what to do with the appendix by** 30 September**. The topic to appear in the agenda of the 4th SG meeting.**	**SG**

第一至三次COMPSIS會議
使用者介面/網頁建立

第一次COMPSIS會議	由德國領導的工作小組協助CLH建立使用者介面。 CLH提議網頁結構－包括公用的COMPSIS網站和密碼保護的內部計畫網站。CLH負責建立網站，維持更新。
第二次COMPSIS會議	資料交換中心建置使用者介面雛型，http://www.compsis.org網頁結構分為三個區域，即公用區、資料交換中心區及計畫室（project room）。
第三次COMPSIS會議	資料交換中心完成使用者介面

COMPSIS

首頁 | project room | contacts | public documents

您位於：首頁

導覽

- 首頁
- Project Room
- Contacts
- Public Documents
- COMPSIS Flier

登入

登入名稱

密碼

登入

忘記密碼？

Welcome to the COMPSIS Project

作者 admin — 最近修改 2006-04-08 16:39

OECD Exchange of Operating Experience Concerning Computer-based Systems Important to Safety

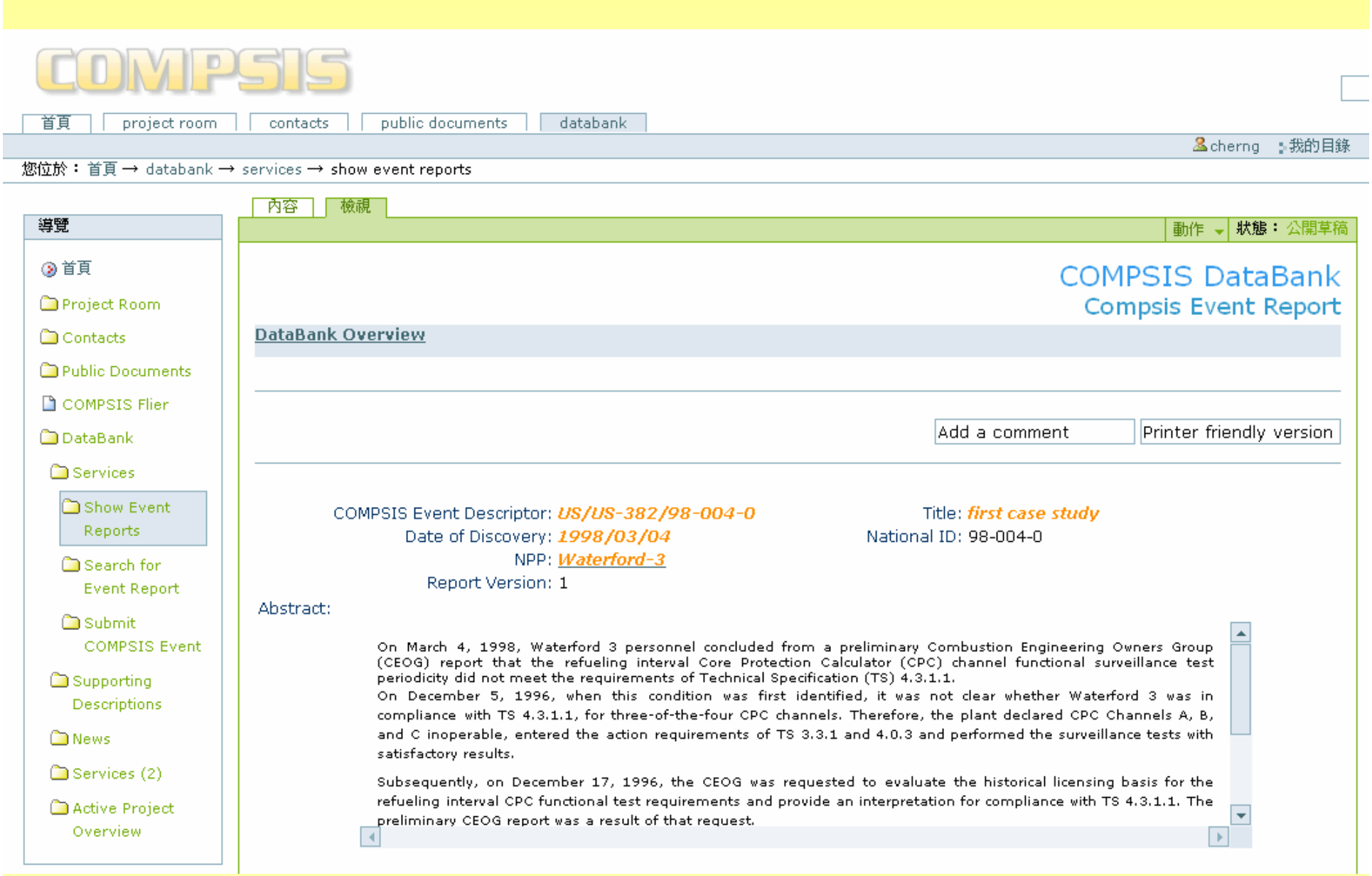
The **COMPSIS** project is a joint project to facilitate the exchange of operating experience on computer-based systems important to safety.

The **COMPSIS** project's overall objective is to improve safety management and the quality of risk analysis of computer-based systems including digital I&C systems. Software and hardware faults in safety-critical systems are typically rare and consequently most countries do not experience enough of them to be able to draw any meaningful conclusions after their occurrence. Combining information from several countries has been experienced as a successful method for overcoming this problem in several other NEA joint projects, and will therefore be employed in the COMPSIS project.

The **COMPSIS** project is supervised and managed by a Steering Group composed of the national coordinators and additional experts from the project's member countries.

The **COMPSIS** project is administered under the umbrella of OECD NEA and its Committee on the Safety of Nuclear Installations (CSNI).

The **COMPSIS** project is led by the project's Clearing House, which is hosted by Institute for Energy Technology, Halden, Norway.


COMPSIS
首頁
project room
contacts
public documents
databank
cherng
我的目錄
您位於： 首頁 → databank → services → show event reports
導覽
首頁
Project Room
Contacts
Public Documents
COMPSIS Flier
DataBank
Services
Show Event Reports
Search for Event Report
Submit COMPSIS Event
Supporting Descriptions
News
Services (2)
Active Project Overview
內容
檢視
動作
狀態： 公開草稿
COMPSIS DataBank
Compsis Event Report
DataBank Overview
Add a comment
Printer friendly version
COMPSIS Event Descriptor: US/US-382/98-004-0
Title: first case study
Date of Discovery: 1998/03/04
National ID: 98-004-0
NPP: Waterford-3
Report Version: 1
Abstract:
On March 4, 1998, Waterford 3 personnel concluded from a preliminary Combustion Engineering Owners Group (CEOG) report that the refueling interval Core Protection Calculator (CPC) channel functional surveillance test periodicity did not meet the requirements of Technical Specification (TS) 4.3.1.1.
On December 5, 1996, when this condition was first identified, it was not clear whether Waterford 3 was in compliance with TS 4.3.1.1, for three-of-the-four CPC channels. Therefore, the plant declared CPC Channels A, B, and C inoperable, entered the action requirements of TS 3.3.1 and 4.0.3 and performed the surveillance tests with satisfactory results.
Subsequently, on December 17, 1996, the CEOG was requested to evaluate the historical licensing basis for the refueling interval CPC functional test requirements and provide an interpretation for compliance with TS 4.3.1.1. The preliminary CEOG report was a result of that request.

第一至三次COMPSIS會議
資料分析

第一次COMPSIS會議	■ 與會者認為趨勢(trend)和類型(pattern)分析值得納入資料庫，而定性分析和問題確認亦很重要，但如僅賴以LER為主的資料，大多類的定量分析是無法進行的。 ■ 本次會議決定由台灣領導，與瑞典、CLH共同探討第一階段計畫執行時，依據LER資料可進行何種方式的分析。
第二次COMPSIS會議	■ 短期內尚無資料分析工作 ■ (Action COMP 2-9)瑞典與台灣負責蒐集會員國提出分析需求。

第一至三次COMPSIS會議
資料分析

第三次COMPSIS會議	■ (Action COMP 2-9)瑞典與台灣負責蒐集會員國提出分析需求。僅收到韓國、芬蘭、瑞士等國之回應。 ■ (Action COMP 3-12)為(1)確定失效事件分析之類型(type)、(2)獲得預防與偵測失效的方法，此深受資料內容影響，資料庫欄位編碼也需相對配合。由於此次僅三個會員國提供意見，台灣與瑞典仍需持續共同負責此一工作，持續蒐集意見。 ■ 台灣代表同時解釋目前常見軟體失效分析方法可區分為software centric之分析方法與system centric之分析方法。台灣同時說明在已發生之失效事件中，有些事件具有軟體為中心之特性，有些事件具有系統為中心之特性。因此，COMPSIS計畫中所蒐集之事件對上述二類分析方法皆極有價值。

第一至三次COMPSIS會議
資料分析

第三次 COMPSIS會議	■ 經COMPSIS指導小組討論，初步獲致結論如下： ●COMPSIS之分析方法應採用系統為中心， ●不應強迫會員國使用任何事件分析方法論， ●台灣所建議之分析方法提供一種肇因分析方法論。

AEN Agence pour l'énergie nucléaire
NEA Nuclear Energy Agency

The Nuclear Energy Agency (NEA)

The Nuclear Energy Agency (NEA) is a specialised agency within the Organisation for Economic Co-operation and Development (OECD), an intergovernmental organisation of industrialised countries, based in Paris, France.

The mission of the NEA is to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for the safe, environmentally friendly and economical use of nuclear energy for peaceful purposes. To achieve this, the NEA works as: a forum for sharing information and experience and promoting international co-operation; a centre of excellence which helps member countries to pool and maintain their technical expertise; a vehicle for facilitating policy analyses and developing consensus based on its technical work.

IFE Institute for Energy Technology

Institute for Energy Technology

IFE (Institutt For Energiteknikk) is an independent foundation established in 1948 with sectors at Kjeller and in Halden. With a staff of about 550, IFE is an international research centre for nuclear and energy technology.

A considerable part of IFE's research and development activities are directed at profitable and environmentally acceptable techniques for oil and gas production, power generation and supply, and energy use. Collaboration in reactor and information technology is mainly through the OECD Halden Reactor Project, in which IFE co-operates with about 100 organisations in 18 countries. The COMPSIS project is operated by persons assigned to the activities of the Software Engineering laboratory in Safety MTO, one of IFE's five sectors.

AEN NEA

IFE

COMPSIS

The COMPSIS project is a joint project to collect and analyse operating experience on COMPuter-based Systems Important to Safety

The COMPSIS project aims to facilitate the exchange of operating experience in the area of computer-based control systems important to safety. The overall objective is to improve safety management and the quality of risk analysis of the software used in computerised systems and other equipment. Software and hardware faults in safety-critical systems are typically rare and consequently most countries do not experience enough of them to be able to draw any meaningful conclusions after their occurrence. Combining information from several countries has proved a successful method for overcoming this problem in several other NEA joint projects and this approach will be employed in the course of the COMPSIS project.

The COMPSIS project is operated under the umbrella of OECD NEA and its Committee on the Safety of Nuclear Installations (CSNI).

The COMPSIS project is led by a Steering Group composed by the national coordinators of the COMPSIS member countries. The NEA administers the project on behalf of the project participants.

The COMPSIS project operates through a Clearing House, which is hosted by Institute for Energy Technology, Halden, Norway.

AEN NEA

IFE

AEN NEA

COMPSIS

OECD Exchange of Operating Experience concerning COMPuter-based Systems Important to Safety

IFE Institute for Energy Technology

www.compsis.org

COMPSIS Members (2005):

Finland (STUK Radiation and Nuclear Safety Authority)
Germany (Gesellshaft für Anlagen- und Reaktorsicherheit mbh, GRS and ISTec GmbH)
Hungary (Paks Nuclear Power Plant Ltd and Hungarian Atomic Energy Authority)
Japan (Japan Nuclear Energy Safety Organization, JNES)
Republic of Korea (Korea Institute of Nuclear Safety)
Slovak Republic (VUJE Trnava Inc.)
Sweden (Swedish Nuclear Power Inspectorate, SKI)
Switzerland (Swiss Federal Nuclear Safety Inspectorate, HSK)
Taiwan, Chinese Taipei (Atomic Energy Council)
USA (U.S. Nuclear Regulatory Commission)

History

A COMPSIS task group was originally formed in 1996. The functions of the task group were to: (1) collect, analyse and report on the operating experience of computer-based systems at nuclear power plants in the participating countries; and (2) evaluate the evolving technology as it is applied to nuclear power plants and identify new issues that might affect the licensing and operation of computer systems in NPPs.

The task group produced a trial database and a set of guidelines issued as NEA/CSNI/R(99)14. The members of the task group concluded at the beginning of 2003 that wider data collection and an in-depth analysis of the issue was worth pursuing internationally. The Project officially started in 2005.

Related Links:

NEA: **www.nea.fr**
Committee on the Safety of Nuclear Installations (CSNI):
www.nea.fr/html/nsd/csni/index.html
IFE: **www.ife.no**

COMPSIS

The Objectives of the COMPSIS Project

- Define a format and collect software and hardware fault experience in computer-based safety critical NPP systems in a structured, quality assured and consistent database.
- Collect and analyse COMPSIS events over a long term in order to better understand such events, their causes, and their prevention.
- Generate insights into the root causes and contributors of COMPSIS events which can then be used to derive approaches or mechanisms for their prevention or for mitigating their consequences.
- Establish a mechanism for an efficient feedback of experience gained in connection with COMPSIS events including the development of defences against their occurrence, such as diagnostics, tests and inspections.
- Record event attributes and dominant contributors so that a basis for national risk analysis of computerised systems is established.

Documentation and Data Access

The project documentation is divided into two levels of confidentiality. The Project Member and Steering Group documentation is on a password protected area. Members may also access the COMPSIS databank on the web. The databank is proprietary information and is only available for members contributing with their own data. Also, a public web site is available for interested parties. Main reports of the project will be made public.

How to Become A Participant

Each country participating in the COMPSIS project nominates a national coordinator responsible for the administration of the COMPSIS project in that country. All national coordinators constitute together the COMPSIS Steering Group.

AEN NEA

IFE

New countries wishing to participate in the COMPSIS project may indicate their interest to the Steering Group. For further information, please contact the COMPSIS Secretariat.

Clearing House and NEA Secretariat

To ensure consistency of the data contributed by the national coordinators, the COMPSIS project operates through a Clearing House. The Clearing House verifies whether the information provided by the national coordinators complies with the COMPSIS Coding Guidelines. It also verifies the correctness of the data included in the database jointly with the national coordinator who has provided such data. In addition, the Clearing House operates the databank. The NEA Secretariat takes care of the general project administration.

COMPSIS Project Contacts:

COMPSIS Secretariat, OECD Nuclear Energy Agency:
Contact: Pekka Pyy
Mail: pekka.pyy@oecd.org / Tel: +33 1 45 24 10 54

COMPSIS Clearing House: Institute for Energy Technology
Contact: Atoosa P-J Thunem
Mail: atoosa.p-j.thunem@hrp.no / Tel: +47 69 21 23 22
Other members:
Rossella Bisio, Harald P-J Thunem
Mail: rossella.bisio@hrp.no / Tel: +47 69 21 22 49
harald.p-j.thunem@hrp.no / Tel: +47 69 21 22 78

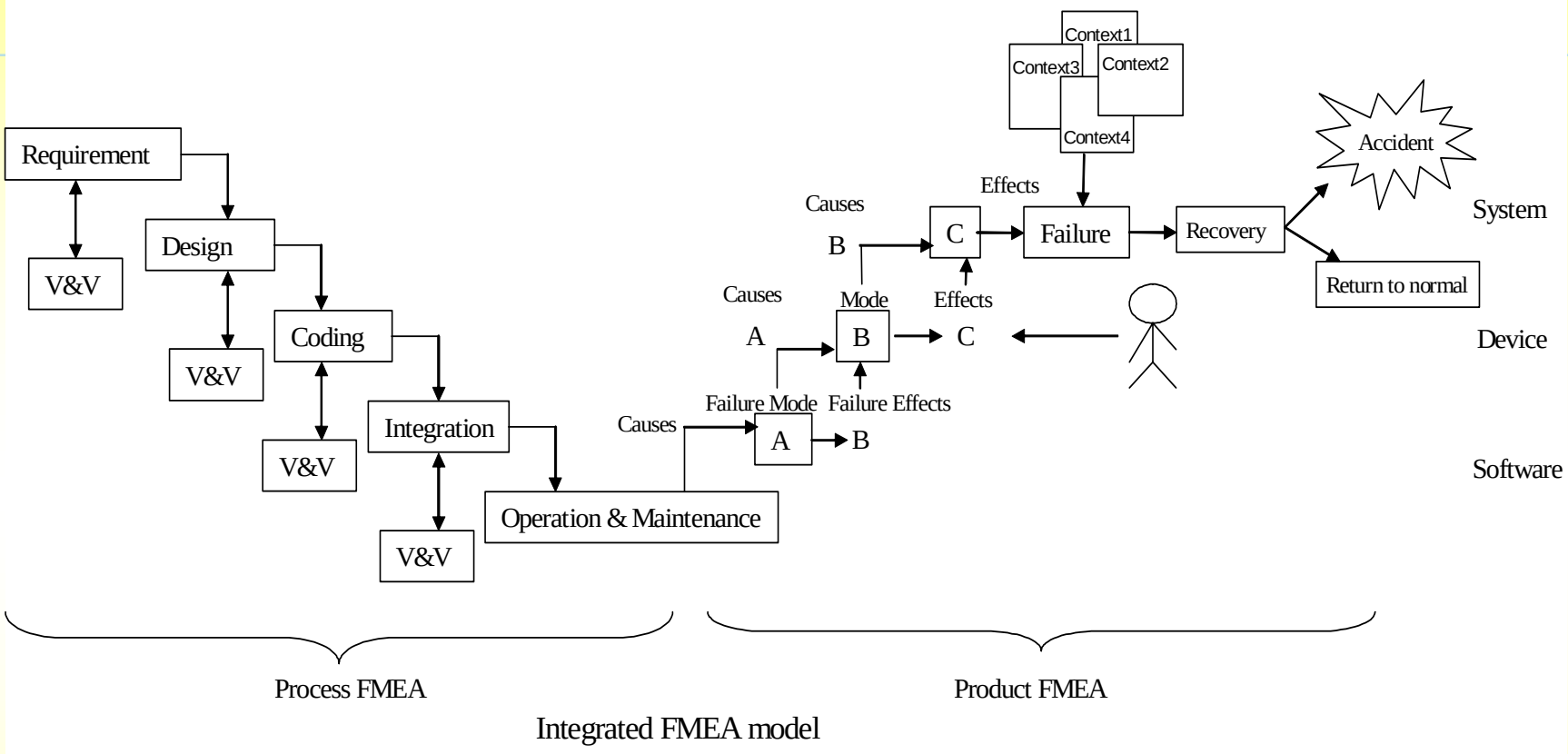
www.compsis.org

COMPSIS

Taiwan, Chinese Taipei (Atomic Energy Council)

第一至三次COMPSIS會議
論文/專題報告(台灣部份)

第一次 COMPSIS會議	台灣代表郭成聰博士展示一套數位儀控系統失效資訊分析檢索軟體。
第二次 COMPSIS會議	我國代表易俗博士簡報電腦威脅議題，威脅可來自內部及外部的駭客惡意攻擊及病毒攻擊；此外，並簡報台灣及世界儀控失效事件。
第三次 COMPSIS會議	台灣代表黃揮文在會中也說明台灣所提出之整合性失效模式與效應分析 (Integrated Failure Modes and Effects Analysis, IFMEA)方法。



Integrated FMEA model

Integrated FMEA Model

The objective of IFMEA is to reconstruct the failure event sequence, and identify the root cause, and then recognize how the event happened.

第四次COMPSIS會議

- 日期：2006年4月19～21日
- 會議地點：匈牙利布達佩斯
- 台灣代表：原能會莊長富科長、原能會核研所郭成聰副組長、黃揮文

第四次COMPSIS會議
議題討論

- **編碼導則及資料庫/使用者介面設計**
  - 有關COMPSIS計畫相關議題方面，本次會議討論的重點仍在編碼導則(Coding Guideline)，大會針對第三次會議列出的28件待處理事項逐一檢視，編碼導則內容大致確定。
  - 各會員國開始據以輸入COMPSIS事件，然後視需要依輸入失效事件後發現的問題，再修訂編碼導則。

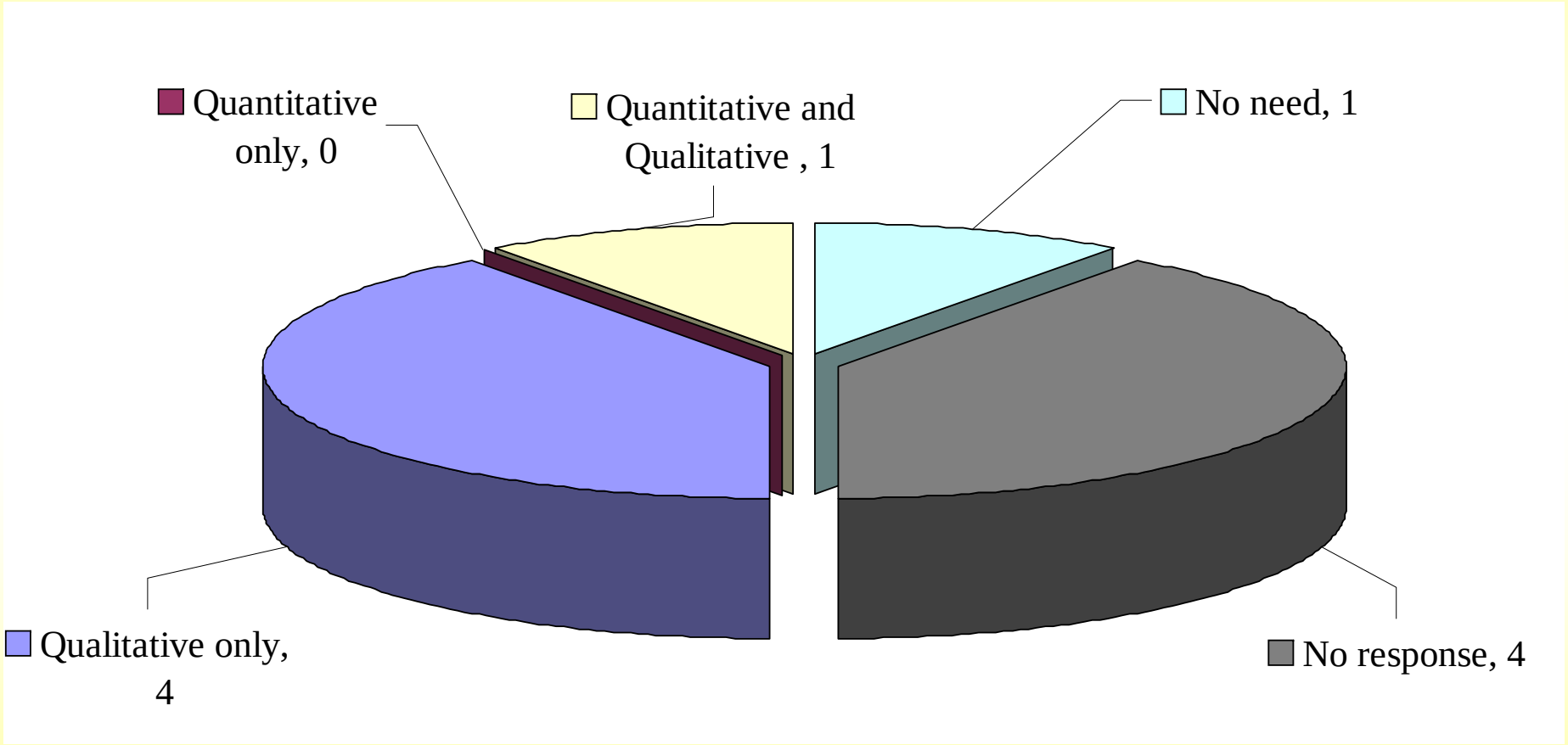
第四次COMPSIS會議
議題討論

- 資料分析
  - 台灣代表針對各會員國期望的COMPSIS事件分析類型(type)作綜整報告。
  - 依據各會員國所提出的需求，顯示多數國家傾向**定性分析**，只有美國、韓國等兩個國家同時對定性和定量分析感興趣。此項調查結果，將可提供各會員國執行資料分析參考。

Survey summary (received responses)

Country	Received response ?	Date
Finland 	YES	April 15, 2006
Germany 	YES	August 1, 2006
Hungary 	NO	-
Japan 	NO	-
Korea 	YES	April 4, 2006
Slovakia 	NO	-
Sweden 	NO	-
Switzerland 	YES	April 15, 2006
Taiwan 	YES	August 5, 2006
USA 	YES	August 10, 2006

Survey summary (received responses)



第四次COMPSIS會議

- 針對第二期COMPSIS計畫，大會執行秘書Pyy博士也希望大家共同參與。
- 完成新的Terms and conditions初稿
- 原能會召開會議討論後決定我國繼續參加第二期COMPSIS計畫。

第四次COMPSIS會議

- 此次會議計有7個國家簡報各國有關數位儀控系統的失效事件，題目如下
  - 台灣：Fuel Inclined Due to Improper Software Design Change Process and Unauthorized Operation of Refueling Machine Control System.
  - 瑞典：Loss of 400KV and Subsequent Failure to Start Emergency Diesel Generators(25 July 2006 Forsmark 1).
  - 美國：United States Digital System Failure Events.
  - 韓國：Major Events of the Secondary Digital I&C System in Korean NPPs.
  - 瑞士：Events—Part 1 RPS and Events, Part 2 HMI.
  - 德國：Overview German Events.

第五次COMPSIS會議

- 日期：2007年5月8 ~ 10日
- 會議地點：瑞典斯德哥爾摩
- 台灣代表：核研所陳明輝、黃揮文

第五次COMPSIS會議
議題討論

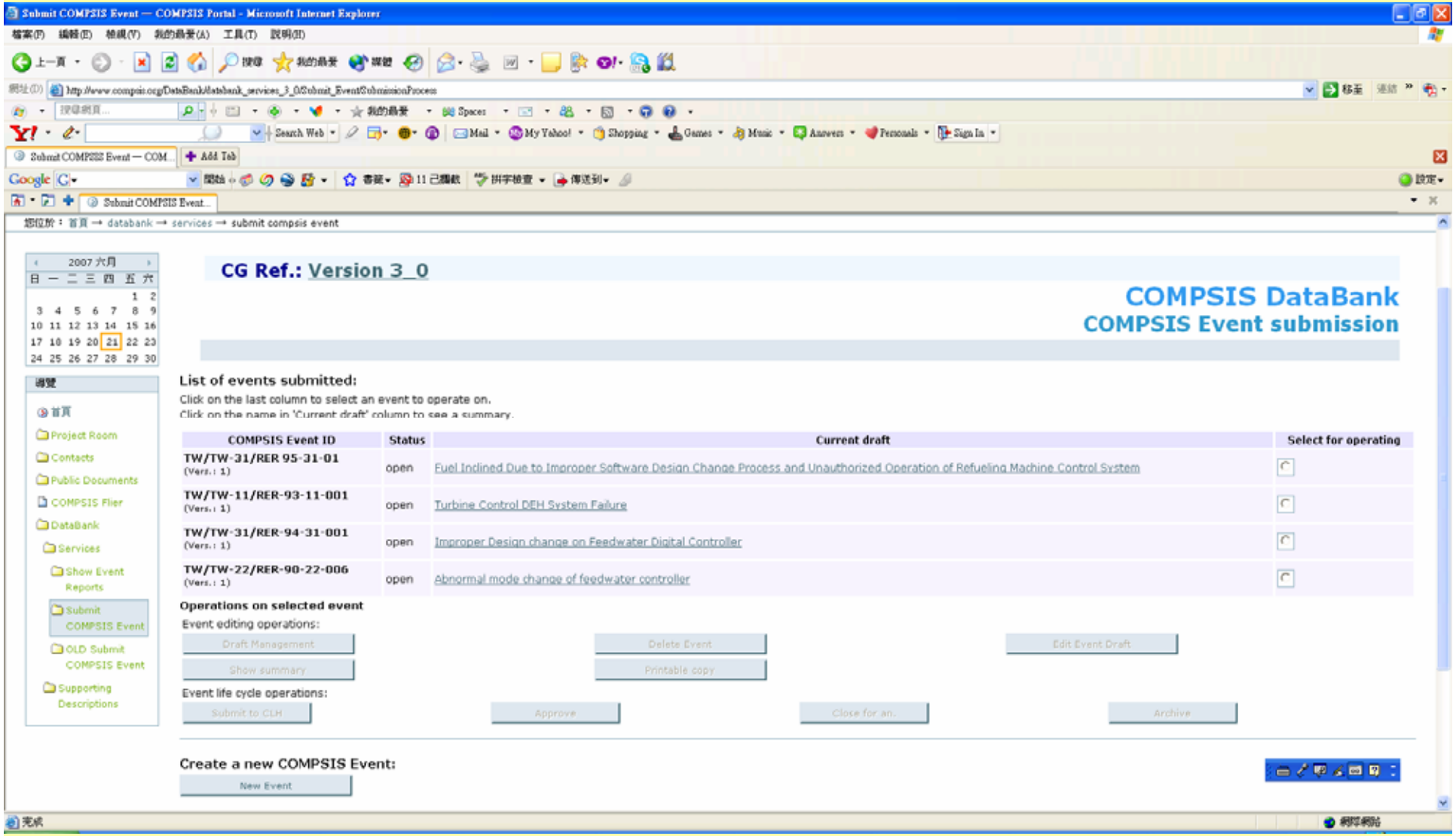
- 編碼導則及資料庫/使用者介面設計
  - 編碼導則(Coding Guideline，CG)已於第四次會議大致確定
  - 資料庫/使用者介面格式也大致完成修正
  - 迄第五次會期為止，共輸入37項失效事件 (含台灣輸入4項事件)，經CLH審查，仍有部份輸入失效事件內容不完整。

第五次COMPSIS會議
議題討論

- 資料分析
  - 原由我國與CLH共同負責的資料分析工作，在本次會議中區分為量化分析與質化分析。CLH成員主要為資訊科學背景，且新任CLH負責人Björn-Axel Gran博士為軟體可靠度專家，因此量化分析由CLH負責。
  - 匈牙利代表Hamar先生表示對定性質化分析有興趣，我方亦表示歡迎共同合作。因此至下個會期(預計十月於德國科隆舉辦)之前，台灣與匈牙利將針對COMPSIS資料庫中各事件之肇因(root causes)、後果(consequences)以及經驗教訓(lessons learned)進行定性分析。
  - CLH將於近期重新開放資料庫供各國分析研究。Gran博士對航空界之軟體可靠度有相當經驗，他認為目前COMPSIS資料庫數據仍然不足，現階段不易完成有意義的量化分析。

第五次COMPSIS會議
議題討論

- 資料分析
  - 台灣與匈牙利則表示進行質化分析時，可參考以往核能領域經驗，以現有數十項事件，應可獲得若干有價值的發現。
  - 另第四次會議主辦國匈牙利代表Hamar先生在會中公開讚揚台灣蒐集各會員國期望的COMPSIS事件分析類型，以及蒐集其他非核能領域對數位系統失效事件分析方法所做的努力。可見參與國際合作計畫，用心投入計畫參與工作，才是獲得國際友誼與知名度的最佳方法。


Submit COMPSIS Event — COMPSIS Portal - Microsoft Internet Explorer
CG Ref.: Version 3_0
COMPSIS DataBank
COMPSIS Event submission
List of events submitted:
Click on the last column to select an event to operate on.
COMPSIS Event ID
Status
Current draft
Select for operating
TW/TW-31/RER 95-31-01
(Vers.: 1)
open
Fuel Inclined Due to Improper Software Design Change Process and Unauthorized Operation of Refueling Machine Control System
TW/TW-11/RER-93-11-001
(Vers.: 1)
open
Turbine Control DEH System Failure
TW/TW-31/RER-94-31-001
(Vers.: 1)
open
Improper Design change on Feedwater Digital Controller
TW/TW-22/RER-90-22-006
(Vers.: 1)
open
Abnormal mode change of feedwater controller
Operations on selected event
Event editing operations:
Draft Management
Delete Event
Edit Event Draft
Show summary
Printable copy
Event life cycle operations:
Submit to CLH
Approve
Close for an.
Archive
Create a new COMPSIS Event:
New Event

COMPSIS 事件

27 events retrieved

Event Identifier	Plant name	Reactor type
KR/KR-2/KR	Kori Unit 2	PWR
HU/HU-1/1999-0000	PAKS-1	PWR
US/US-254/05-005	Quad Cities-1	BWR
JP/JP-25/JP203	Fukushima II-1	BWR
KR/KR-19/KR	Ulchin Unit 5 (KNU-19)	PWR
HU/HU-1/1996-0574	PAKS-1	PWR
TW/TW-11/RER-93-11-001	Chinshan 1	BWR
JP/JP-55/JP1891	Kashiwazaki Kariwa-6	BWR
TW/TW-31/RER-94-31-001	Maanshan 1	PWR
HU/HU-2/2004-1235	PAKS-2	PWR
KR/KR-15/KR	Wolsong-3	PHWR
JP/JP-55/JP198	Kashiwazaki Kariwa-6	BWR
DE/DE-16/2005/008	ISAR-1	BWR

Event Identifier	Plant name	Reactor type
US/US-423/US- 423	Millstone-3	PWR
HU/HU-2/2004-1231	PAKS-2	PWR
US/US-341/04-002	Enrico Fermi-2	BWR
JP/JP-57/JP2397	Hamaoka-5	BWR
DE/DE-13/2005/078	Brunsbuettel	BWR
TW/TW-31/RER 95-31-01	Maanshan 1	PWR
HU/HU-4/2002-1087	PAKS-4	PWR
US/US-277/04-003	Peach Bottom-2	BWR
JP/JP-54/JP2191	Onagawa-2	BWR
DE/DE-28/2004/129	Gundremmingen-C	BWR
KR/KR-20/KR	Ulchin Unit 6 (KNU-20)	PWR
HU/HU-1/2002-1084	PAKS-1	PWR
TW/TW-22/RER-90-22-006	Kuosheng 2	BWR
JP/JP-52/JP255	Kashiwazaki Kariwa-3	BWR

我國輸入COMPSIS事件

- TW/TW-11/RER-93-11-001 Turbine Control DEH System
- TW/TW-22/RER-90-22-006-Abnormal mode change of feedwater controller
- TW/TW-31/RER-94-31-001- Improper Design change on Feedwater Digital Controller
- TW/TW-31/RER 95-31-01- Fuel Inclined Due to Improper Software Design Change Process and Unauthorized Operation of Refueling Machine Control System

第五次COMPSIS會議
議題討論

- 第一期COMPSIS計畫期末報告草案內容在本次會議中提出，經討論報告大綱如右：

摘要 (Executive Summary)
1.前言/背景 (Introduction/Background)
2.範圍與目的 (Scope and Objectives)
3.計畫基本架構 (Project Infrastructure)
4.資料庫內容與架構 (Database contents and structure)
5.資料蒐集與現狀 (Data Collection and Current Status)
6.資料分析 (Analysis of Data)
7.觀察 (Observations)
8.結論與建議 (Conclusion and Recommendations)
參考文獻 (References)
首字母縮略詞與辭彙表 (Acronyms & Glossary)
附錄A – 編碼導則 (Appendix A - Coding guidelines)

第五次COMPSIS會議
議題討論

- 第二期COMPSIS計畫(自2008年1月1日至2010年12月31日為期三年)工作條款(Terms and Conditions, T&C)方面，第二版草案仍維持各會員繳交年費10,000歐元為基準。
- COMPSIS SG有權接納新會員，新會員年費除10,000歐元外，還需繳交入會費：簽約(Signatories)會員繳30,000歐元，準會員(Associate)繳10,000歐元。
- 針對第二期COMPSIS計畫，大會執行秘書Pekka Pyy博士徵詢各國參加意願，與會各國皆表示願意參加。
- 原能會於行前召開會議，由原能會、核研所、台電決議同意參加，因此本所代表表示台灣亦有興趣參加第二期的COMPSIS計畫。
- 第二期的COMPSIS計畫的代理運作機構(Operating Agent, OA)由挪威哈登(Halden)之能源科技院(Institute for Energy Technology，IFE)擔任，也就是第二期COMPSIS計畫資料交換中心(Clearinghouse，CLH)成員。

結論

- 第一期COMPSIS計畫將於本年度結束，其期末報告預計於十月舉行之第六次指導小組會議討論定稿。依據原先計畫設定之目標，第一期COMPSIS計畫主要為各會員國依據軟體失效事件資料庫編碼導則，輸入失效事件，並進行初步之統計定量分析及定性質化分析，以深入了解事件之肇因及預防機制，重點在於分享資訊與經驗交流，提升核能安全。
- 第二期三年計畫重點在於建立有效的經驗回饋機制與分析方法，我方將繼續在分析方法方面積極參與計畫。我國常受制於政治現實，不易在國際舞台施展，然而用心投入計畫參與工作，仍可獲得國際友誼的支持與在相關領域的知名度。

第一次COMPSIS會議

第一次COMPSIS會議地點
—法國巴黎OECD總部

參與會議各國代表合影

第一次COMPSIS會議

← 會議召開現場

台灣代表進行簡報實景 →

第二次COMPSIS會議

第三次COMPSIS會議

한국원자력안전기술원
KOREA INSTITUTE OF NUCLEAR SAFETY

第三次COMPSIS會議

第三次COMPSIS會議

第四次COMPSIS會議

HUNGARIAN ATOMIC ENERGY AUTHORITY

第五次COMPSIS會議


Thank you for
your attention !!