

出國報告（出國類別：其他）

赴加拿大參加 2011 國際輻射生態學及環境 輻射研討會(ICRER)出國報告

服務機關：行政院原子能委員會

姓名職稱：聶至謙 技士

派赴國家：加拿大

出國期間：100 年 6 月 18 日至 6 月 27 日

報告日期：100 年 10 月 3 日

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摘要

本次職奉派赴加拿大漢米敦 (Hamilton) 參加 2011 年國際輻射生態學及環境輻射研討會 (International Conference on Radioecology and Environmental Radioactivity, ICRER)，其主辦單位為麥馬士達大學 (McMaster University)、挪威輻防管理機構 (NRPA) 及法國輻防機構 (IRSN) 及六個協辦之國際機構。

會議主題為輻射生態學與環境，包括：1. 輻射生態類別、遷移及敏感度、2. 輻射生物學、3. 輻射監測及風險管理、4. 環境保護、5. 緊急事件之整備、復原及管理、6. 天然放射性物質 NORM、7. 核能活動之影響因素、8. 輻射與社會、9. 車諾比事故後之四分之一世紀、10. 環境中的氬等十項主題，分別以專題演講、口頭報告及論文發表方式進行，以討論及分享國際間輻射生態學及環境輻射之相關研究趨勢、管制作為及發展趨，合計 119 篇專題演講、52 篇口頭報告及 245 篇論文發表。

壹、出國目的與行程

一、目的：

此次赴加拿大漢米敦參加 2011 國際輻射生態學與環境輻射研討會 (International Conference on Radioecology and Environmental Radioactivity, ICRER)，除為瞭解國際間輻射影響生態及環境之衝擊與影響，並對國際制訂相關標準與管制趨勢及演進有所認知，期達管制經驗分享及交流之目的，並藉會議所得對日後國內環境輻射管制措施之精進有所助益，並與國際間輻防管制趨勢接軌。

二、出國行程

日期	地點與行程	工作內容
6/18	台北-加拿大 (漢米敦)	去程
6/19	15:30~	報到及歡迎會
6/19 - 6/24	08:30~	1、開幕會議 2、大會專題演講及技術分組會議
6/26 - 6/27	加拿大(漢米 敦)-台北	返程

貳、會議內容

一、國際輻射生態學及環境輻射研討會（ICRER）簡介

2011 年於加拿大漢米敦（Hamilton）喜來登大飯店舉辦之國際輻射生態及環境輻射研討會（ICRER）為首次非於歐洲地區舉辦之會議（如圖一）。



圖一、國際輻射生態學及環境輻射研討會會議時間及地點

此次研討會乃基於探討輻射生態學及環境輻射中之現存或潛在之放射性物質對環境造成衝擊及影響，且該研討會每隔三年舉辦乙次，除藉由觀察、探討現階段之輻射生態學及相關進展，並持續發展其衍生之議題。研討會含括基礎科學、管理者與工業界之需求，如包含預期放射性物於工業界、自然界、意外事故及潛在性等之後續變化，並以協助規劃緊急狀況防範之法律規範及導則，以達人類與生態系統之輻射防護。

原先研討會計畫之主題為核能之復甦 (Nuclear Renaissance)，以反映國際間相對於石油及氫氣等能源而言，核能對環境造成之影響將顯得較小，故應屬較為乾淨之能源首選。未料，本年 3 月日本福島核能電廠事故，因此研討會內容除加重了核能安全之考量，亦因該事故間接提升輻射生態學及環境輻射議題之重要性。

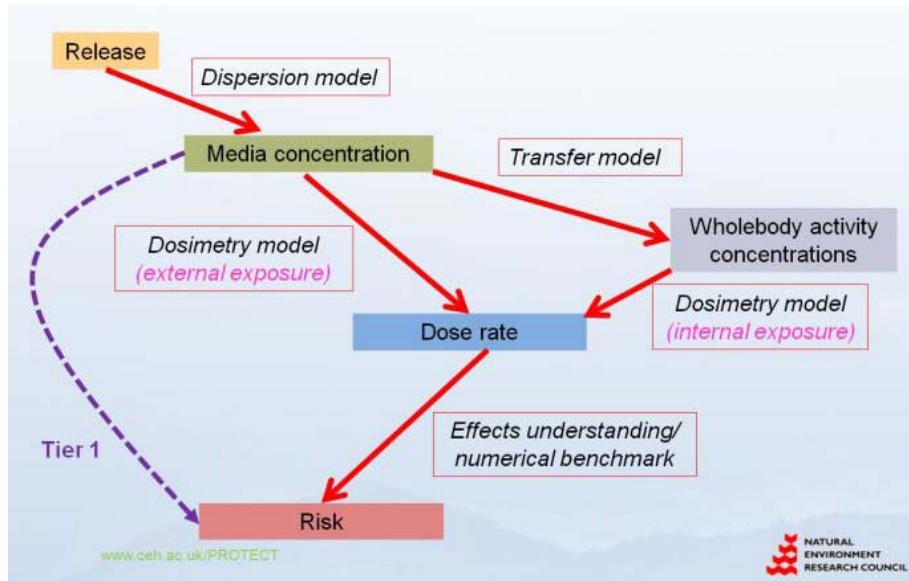
本次研討會之議題如下：

1. Radioecological speciation, transfer and sensitivity
2. Radiation biology
3. Surveillance and risk management
4. Environmental protection
5. Emergency preparedness, rehabilitation and management

6. Norm including mines, refineries, conversion and non-nuclear
7. Environmental aspect of nuclear activities (including wastes and nuclear legacy)
8. Radiation and society
9. A quarter century after chernobyl
10. Tritium in the environment

二、輻射生態學：

輻射生態學 (Radioecology) 乃探討放射性物質之遷移及轉移至環境中，導致潛在影響人體健康與生態系統 (Ecosystem) 之一門科學 (如圖二所示)，其適用性不限於核子災害發生之際或發生之後對人體與環境造成的曝露評估及預期，更適用於核能電廠正常運轉情況下之評估與管理，且此研究領域需能減少人體或環境生態輻射風險評估之不確定性。



圖二、輻射遷移、轉移、影響及風險評估模式

三、國際間輻射生態學與環境輻射交流與研究

目前幾個主要輻射生態學領域之歐洲組織，包括德國 BFS、英國 NERC、西班牙 CIEMAT、法國 IRSN、挪威 NRPA、比利時 SCK/CEN、瑞典 SSM 及芬蘭 STUK 等 8 個國際組織，目前已簽署有研究備忘錄，並據以運作歐洲輻射生態學聯盟（European Radioecology Alliance；the Alliance）。

該聯盟於未來幾個月內，將發展策略性研究議程（Strategy Research Agenda），其為一結合各輻射生態學之研究計畫，並為期 15 年。下一階段將訂定歐洲水平，其主要針對研究設施之使用、輻射生態學之訓練及管理與知識執行最佳化。該發展業已受歐洲委員會（European Commission EURATOM FP7）所支持，並提供一輻射生態學領域之網路

系統—STAR (Strategy for Allied Radioecology)，而本次研討會提供 STAR 系統之簡介，該網路系統目的為整合訓練、管理、知識宣導及輻射生態學之研究，且研究著重於三個面向，分別為：

1. 人類及野生生物輻射風險評估之整合
2. 對於生態系統低劑量效應之研究
3. 探討結合放射性物質與化學物質之混合污染物之後續影響。

四、國際環境輻射防護之發展

目前，環境保護在國際上乃為一重要議題，其探討於不同面向之人類活動，因環境輻射對生物間之存亡於環境生態或人類活動中如同食物鏈般（如圖三），且 ICRP 相信對於人類之輻射防護亦需考量環境之管制，訂定標準以防止非人類生物（non-human biota）對人類直接或間接造成輻射風險，故於 ICRP 第 91 報告書中指出：對於評估及管制實際上與潛在性之環境輻射影響，需要擴大至以國際為基礎及需發展一輻射生物效應及防護之研究方法。該報告考量：（1）對於環境輻射防護需發展一組織架構，且其需為有彈性地適用於現存環境管理方式中，（2）環境輻射防護之發展需儘可能地與目前人類輻射防護系統相關聯。基於上述發展一有限數量之參考動物及參考植物

（Reference Animals and Plants, RAP），以滿足特定動物或植物參

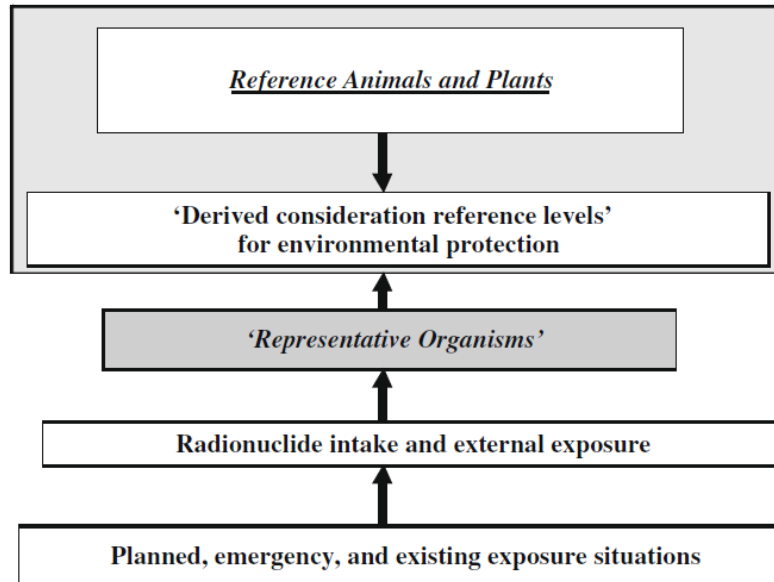
代表環境生態中之生物族群。



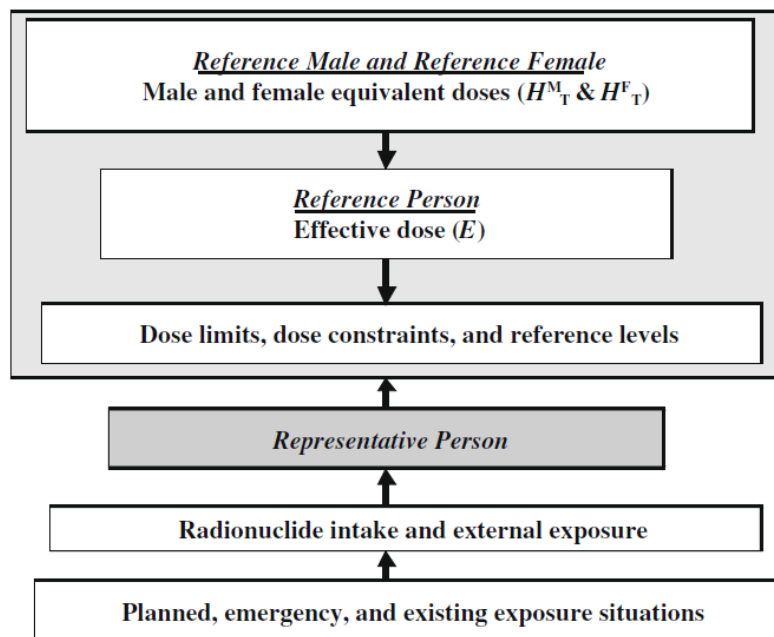
圖三、環境生態間之食物鏈關係

2003 年後，ICRP 再次組成一工作團隊持續針對環境輻射防護議題討探，並考量未來環境輻射防護如何滿足預期之環境管理。於 2005 年，ICRP 成立第五委員會（Committee 5），其宗旨乃針對境輻射防護進行探討，以確保環境防護兼顧人類及環境免受潛在性之傷害，並於 2009 年提出建議報告書，其環境輻射防護之架構（如圖四）與人類輻射防護評估架構類似（如圖五）採用參考動物及植物（如表一、二）評估境輻射對其之影響。評估架構中乃針對曝露到劑量，劑量到效應間提供一相似於人類輻射防護評估模式之作法，最大差異為對於環境輻射防護之規範不應太過嚴格，而應採用效率水平的衍生考量水平（Derived Consideration Reference Level, DCRL）予以規範，而對於人類輻射防護採取較嚴格之管制標準。本研討會有學者提出評

估野生動、植物之致死劑量(Lethal dose)，可供各界參考(如圖六)。
 其中圖六顯示較高層的哺乳類動物之致死劑量遠低於低層的生物，例
 如苔蘚類、細菌病毒等。



圖四、環境輻射防護評估架構



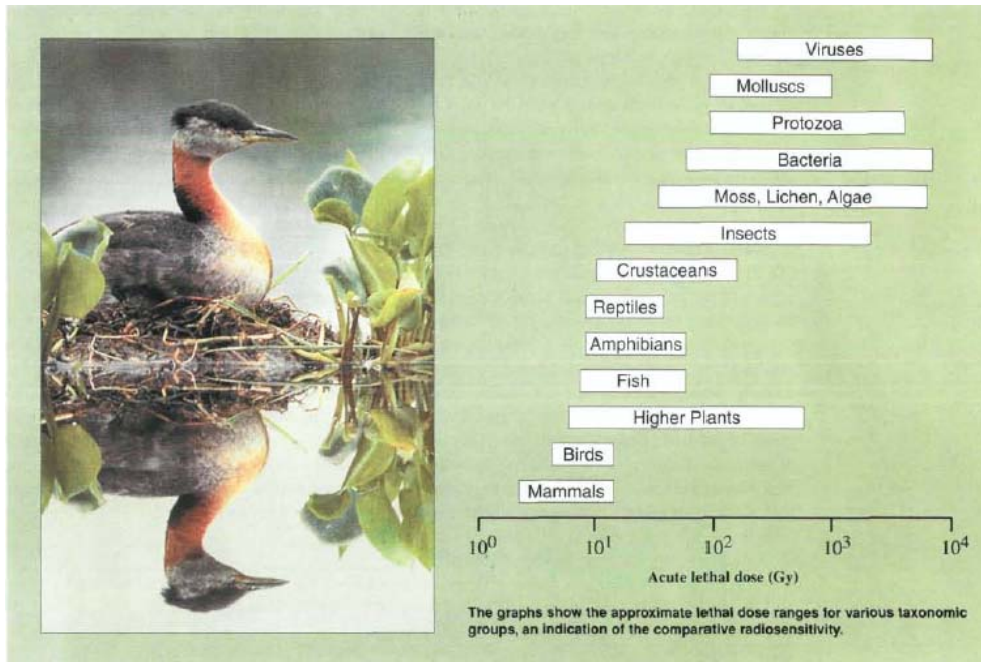
圖五、人類輻射防護評估架構

表一、參考動物及植物於不同狀況下之選擇標準（+低、++中、+++高）

	Legislation relating to wildlife protection	Use in toxicity testing	Human resource	Data on radionuclide accumulation	Data on radiation effects	Amenable to further study
Deer	+		++	+	+	+
Rat	+	+++		++	+++	+++
Duck	+++		+	+	+	+++
Frog	++		+	+	+	++
Trout	++	+++	+++	+	+++	+++
Flatfish		+	+++	+++	++	++
Bee	+	+	++	++	+	+++
Crab		+	+++	+++	+	++
Earthworm		+++		++	+	+++
Pine tree	+		+++	++	+++	+++
Grass		+	+++	++	+++	+++
Seaweed			+	+++	+	++

表二、參考動物及植物依生態分佈之選擇

Organism	Terrestrial	Freshwater	Marine
[Reference Man]	[X]		
Deer	X		
Rat	X		
Duck	X	X	
Frog	X	X	
Trout		X	X
Flat Fish			X
Bee	X		
Crab		X	X
Earthworm	X		
Pine Tree	X		
Grass	X	X	
Brown Seaweed			X



圖六、各種不同動、植物之致死劑量

五、國際間環境輻射防護之管制標準、導則及要求

過去十年間，對於環境輻射防護之議題，國際間及國際輻射防護委員會已著手探討，並期就環境防護提出具體之建議及導則。目前，某些國家已對於非人類之生物（non-human biota）訂定相關要求或導則，如美國能源部（United States Department of Energy；USDOE）已公布生物保護導則及其劑量率之相關規定（5400.5、450.1）；英格蘭及威爾斯於 1994 年要求評估輻射對自然保育生態環境（NATURA 2000 sites）之影響；加拿大則是要求放射性物質外釋需證明其對環境具有適當之防護。

然對於環境輻射防護如何評估、如何執行，國際上已針對現存或

計畫中之核能電廠以及其它有放射性物質外釋之作業場所提出及展示多個非人類生物之輻射曝露模型及評估方式。

而 2004 年，IAEA 於輻射安全環境模式 (Environmental Modeling of Radiation Safety) 計畫中成立生物工作小組 (Biota Working Group, BWG)，其宗旨為提升其會員國環境輻射防護之能力，並發展生物劑量評估及放射性物質授權外釋之量測程序。

於 2010 年，IAEA 修訂 EMRAS I 計畫之技術報告系列 (Technical Report Series, TRS) 之手冊 (TRS 364)，其對於人類食物鏈之放射性物質遷移係數建立重要核種之資料，並量化放射性物質藉由食物鏈遷移至人體之遷移速率，以評估並防護人類受其之危害。

六、國際間天然放射性物質之管制發展

地球上因其地形及結構上等之不同而有不同濃度之天然放射性物質 (Naturally Occurring Radioactive Material, NORM)，並部分貢獻於背景輻射劑量，若人類活動故意或意外造成事故導致環境中天然放射性物質濃度改變，其可能增加人類或非人類生物之輻射風險，因此對於天然放射性物質使用、處理等工業，必需藉由量測及評估因人類活動增加天然放射性物質之濃度。然而，國際上之規範乃針對人類輻射防護有較具體之防護基礎，對於天然放射性物質造成環境

潛在之衝擊並未重視。在 ICRP 第 108 號報告書中指出，必需考量非人類生物之輻射風險，而 IAEA 新的基本安全標準 (Basic Safety Standard, BSS) 草案及歐盟 (European Counterpart) 業已著重於天然放射性物質造成之輻射風險。

世界各地有許多地方受到人造放射性物質或天然放射性物質所污染，且其依國際上現行標準並未採取適當的管制措施以免影響人類及環境。

對於天然放射性物質感興趣之來源，包含磷業、金屬礦業、煤礦開採、石油及氣化業及天然放射性物質污染地等。許多國家針對這些工業尤其關切，正著手探討其污染環境及影響人體健康安全之嚴重性，並決定及修訂其目前及未來之管制措施。

目前，國際上相關之建議指出，需評估天然放射性物及法定管制區於目前及未來衝擊到環境與人體健康發展出更具體之導則。本次會議提及 IAEA 輻射安全環境模式 (EMRAS II) 計畫中，成立一工作團隊著重於天然放射性物質管理之參考方法，其重點在於發展並提出一般性評估方式過程 (General Assessment Methodology Process, GAMP) 及比較不同評估模型之適用性，以作為目前及未來評估天然放射性物質造成人體健康及環境影響有所依循。

七、國內環境輻射管制措施

目前，國內環境輻射管制之標準乃依循 IAEA 及 ICRP 等國際機構建議之報告書、法令及標準訂定，其就涉及放射性物質外釋之作業場所、核能電廠及添加放射性物質之商品中予以規範。分別針對排放至空氣、水中、外來之天然放射性物質及添加於商品中等之放射性物質濃度訂定相關管制標準，以確保民眾之輻射安全。

然根據國際上相關組織及國家就環境輻射防護之建議與導則、標準等，未來國內勢必參考國際上相關建議及報告，並考量國內情勢訂定相關規定，以與國際接軌。

參、心得與建議事項

本次奉派公差心得及建議如下：

- 一、 國際輻射生態學與環境輻射研討會乃與國際接軌以研討環境輻射防護及管制勢趨之會議，為期瞭解並蒐集國際間環境輻射防護之進展，該研討會提供甚多資訊與新知，可供日後國內建立或修訂天然放射性物質（NORM）、放射性物質外釋環境之相關管制系統、措施及導則之參考。
- 二、 目前國內核能電廠、操作具外釋放射性物質之輻射作業場所及自然存在或經製作加工之天然放射性物質等，於正常運轉或操作情況排放含放射性物質之廢氣或廢水，就管制上只考量其所排放之放射性物質濃度對人體健康造成影響，並未含括及評估環境生態系統及其直接或間接影響人體健康之輻射防護與風險，建議未來本會應依循國際輻環境輻射防護之情勢及蒐集國際間之建議與管制標準，逐步訂定相關規定，並據以執行相關管制，以達環境輻射防護之目的。
- 三、 本年 3 月發生日本福島事故，其嚴重造成環境污染及影響環境生態系統，不僅破壞自生態環境，更造成其對人體健康之負面影響。國際上相關機構或研究單位等，正積極進行該長期低劑量率污染區之人類與環境輻射防護探討與研究、建立環境監測

- 四、 國內相關學術研究單位及本會提出之研究合作計畫案，較著重於研究核能電廠廠區內之運轉與結構安全、核子保安及放射性廢棄物處置之技術發展等，然就輻射生態系統及環境輻射影響之議題，尙未深入探討及建立相關評估模式，建議本會應考量ICRP之建議重視輻射生態系統及環境輻射之防護，並培育相關專業人才，以提升我國環境輻射及生態研究之能力。
- 五、 國際上環境輻射及生態之管制體系並非完全由單一機構掌管，反觀國內如涉及有關輻射議題，本會幾乎為惟一之管制單位。然環境輻射及生態之議題層面甚廣，其涉及環境保護、農漁水利、生態保護及保育等相關管制機構，而環境輻射管制亦為其一環。未來，因應國際環境輻射及生態管制情勢，如本會訂定相關法令及導則時，建議應與其它相關單位會商研討法令或規範，以期与其它業管單位法令相輔相成。

肆、參考資料

1. The International Commission on Radiological Protection. A Framework for Assessing the Impact of Ionising Radiation on Non-Human Species. ICRP publication 91, Annals of the ICRP 33, No. 3(2003)
2. Pentreath R.J. 2009 Radioecology, radiobiology, and radiological protection: frameworks and fractures Journal of Environmental Radioactivity 100, 1019 – 1026
3. ICRP 2009 Environmental protection: the Concept and Use of Reference Animals and Plants. ICRP Publication 108. (*Ann. ICRP* 38 (4 – 6) 2008).
4. ICRP 2003. A Framework for Assessing the Impact of Ionising Radiation on Non-Human Species. *ICRP Publication* 91. (*Ann. ICRP* 33 (3) 2003).
5. IAEA 2006 Fundamental Safety principles. IAEA Safety Standards Series No SF-1. IAEA: Vienna.
6. International Atomic Energy Agency (IAEA) (2009) Quantification of radionuclide transfer in terrestrial and freshwater environments for radiological assessments. IAEA-TECDOC-1616. International Atomic Energy Agency, Vienna

伍、附件一

ICRER 會議議程 (The Conference schedule)

Sunday, June 19		Monday, June 20		Tuesday, June 21		Wednesday, June 22		Thursday, June 23		Friday, June 24	
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- Session 1 Radiological sociology, transfer and sensitivity
- Session 2 Radiation Biology
- Session 3 Surveillance and risk management
- Session 4 Environmental protection
- Session 5 Emergency preparedness, rehabilitation and management
- Session 6 Norm including mines, refineries, conversion and non-nuclear
- Session 7 Environmental aspect of nuclear activities (including wastes and nuclear legacy)
- Session 8 Radiation and society
- Session 9 A quarter century after Chernobyl
- Session 10 Tritium in the environment

附件二

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Ademar de Oliveira Ferreira	Ademar	APPLICATION OF A "SEALED CAN TECHNIQUE" AND CR-39 DETECTORS FOR MEASURING RADON EMANATION FROM UNDAMAGED GRANITIC ORNAMENTAL BUILDING MATERIALS
Alexakhin	Rudolf M.	25 YEARS AFTER THE ACCIDENT AT THE CHERNOBYL NUCLEAR POWER PLANT: RADIOECOLOGICAL LESSONS (THEORY AND PRACTICE)
ANDERSSON	Kasper	Parametric improvement for the ingestion dose module of the European ARGOS and RODOS decision support systems
ANDERSSON	Kasper	ON THE REQUIREMENTS TO ESTABLISH A EUROPEAN RADIOLOGICAL PREPAREDNESS FOR MALICIOUS AIRBORNE DISPERSION SCENARIOS
Andersson	Pål	RESULTS FROM 24 YEARS OF MONITORING OF ¹³⁷ Cs IN MOOSE (<i>Alces alces</i>) IN A SWEDISH AREA IMPACTED BY THE CHERNOBYL ACCIDENT
Antonova	Elena	THE IMPACTS OF PERMANENT IRRADIATION ON THE TERRESTRIAL ECOSYSTEMS OF THE EASTERN URAL RADIOACTIVE TRACE
ARO	Lasse	Concentration ratios to crops and garden products near Olkiluoto repository site
ARO	Lasse	Aro, L. & Ikonen, A.T.K. On real and abstracted geometries of boreal forest plants
ASADULIN	Enver	SOURCE AND INFLUENCE OF CHLORITE IN MIGRATION OF RADIONUCLIDES FROM THE LRW DEPOSITORY KARACHAY LAKE (South Urals, Russia)
Barnett	Catherine	Transfer of elements to owls (<i>Tyto alba</i> , <i>Strix aluco</i>) determined using neutron activation and gamma analysis
Bartnicki	Jerzy	NUCLEAR EMERGENCY MODELLING AT THE NORWEGIAN METEOROLOGICAL INSTITUTE
Bengtsson	Stefan	INTERCEPTION OF WET DEPOSITION AND TRANSFER OF RADIOCAESIUM AND RADIOSTRONTIUM BY BRASSICA NAPUS L., TRITICUM AESTIVUM L. AND LEY
BERESFORD	Nick	ESTABLISHING A DATASET FOR A 'REFERENCE SITE'
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Biermans	Geert	EFFECTS OF BETA-RADIATION ON GROWTH AND PHOTOSYNTHESIS IN SEEDLINGS OF ARABIDOPSIS THALIANA AFTER EXPOSURE TO ⁹⁰ Sr
BOLSUNOVSKY	Alexander	RADIONUCLIDE SPECIATION IN SEDIMENTS OF THE YENISEI RIVER

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BRECHIGNAC	François	ENHANCING THE SCOPE OF ECOLOGICAL RISK ASSESSMENT OF RADIATION WITH PARTICULAR REFERENCE TO THE ECOSYSTEM APPROACH
BROWN	Justin	Peculiarities of Distribution of Anthropogenic Radionuclides in Soils and Soil Fractions of Conjugated Floodplain Landscapes of the Yenisey River
BROWN	Justin	Radioactive contamination in the Belarusian sector of the Chernobyl Exclusion Zone.
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BROWN	Justin	NORM risk assessment for the Søve mining complex, Norway.
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DE CORT	Marc	Towards a European Atlas of Natural Radiation: goal, status and future perspectives
Dementyev	Dmitry	Accumulation of Co-60, Sr-90, Cs-137, U-238 and transuranic elements by berry shrubs in forest ecosystems of the Yenisei river basin
Devecchi	Federica	TENORM IN THE DOWNSTREAM OIL SECTOR
DINIS	Maria de Lurdes	ASSESSMENT OF DIRECT RADIOLOGICAL RISK AND INDIRECT ASSOCIATED TOXIC RISKS ORIGINATED BY COAL POWER PLANTS

Dmitriy	Kabanov	Validation for control of organically bound tritium in the environment of nuclear plants
DOMANOV	Mikhail	Investigation of the distribution of ¹³⁷ Cs in the surface layer of the Southern Ocean (Atlantic sector) Domanov P.P. Shirshov Institute of oceanology Russian Academy of Sciences, Nakhimovsky prospect 36, 117997, Moscow, Russia. domanov@ocean.ru
Dr. GALERIU	Dan	A MODEL APPROACH FOR TRITIUM DYNAMICS IN WILD MAMMALS AND BIRDS
Dr. MELINTESCU	Anca-Mirela	TRITIUM DYNAMICS IN LARGE FISH - A MODEL TEST
Fernanda Cavalcante	Fernanda	EFFECTIVE DOSE RATE EVALUATION FROM GAMMA NATURAL RADIATION IN THE REGION OF RIBEIRAO PRETO-SP-BRAZIL
Fischer	Helmut W.	Traces of Fukushima fallout in the environment of Northwest Germany
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Rita	Sibello	Validation of a Method to Measure Plutonium Levels in Marine Sediments from Cuba
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rsrana42@rediffmail.com		ANNUAL EFFECTIVE DOSE FROM EXPOSURE TO LOW-LEVEL RADIATIONS

RULIK	Petr	137Cs AND 90Sr CONTENT IN FOODSTUFS IN THE CZECH REPUBLIC
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wspereira@inb.gov.br		ABSORBED DOSE RATE IN FISH FROM THE BRAZILIAN COAST
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afranio@inb.gov.br		ASSESSMENT OF THE IMPACT OF THE INB EFFLUENT ON THE ÁGUA BRANCA CREEK
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bsbajwal@gmail.com		Measurement of radon concentration in soil and indoor atmosphere of seismically active regions of Dharamshala and Chamba, H.P., India
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manmohan.heer@yahoo.com	Manmohan Singh Heer	Outdoor variations of radon progeny concentrations at two climatically and geologically different areas in northern India
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nikitinal@gmail.com	Alexander	LONG-TERM DYNAMICS OF AIR POLLUTION BY SOME ISOTOPES OF TRANSURANIUM ELEMENTS IN BELARUS AFTER THE CHERNOBYL CATASTROPHE
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ruta@ar.fi.lt		Peculiarities of the contamination of ecosystems with Pu isotopes in Lithuania
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Seleznev	Andrian	Current level of ¹³⁷ Cs contamination at Northern Part of East-Ural Radioactive Trace
seokwon	choi	¹³¹ I levels and dose assessment of the marine environment at Busan coast, Korea
SHEPPARD	Stephen C.	New background data for ¹²⁹ I, ³⁶ Cl and U/Th-series radionuclides in Canadian rivers
Shiryaeva	Nina	EVALUATION OF POTENTIAL RADIOACTIVE CONTAMINATION OF THE GROUND WATER UNDER OPERATION OF THE PLANNED NUCLEAR POWER STATION IN BELARUS
SHULTZ	Carmen	A Small-scale Recirculating System for Measuring Tritium Uptake and Depuration in Rainbow Trout
SIDHU	Rajdeep	RADIOLOGICAL SURVEY OF THE AREA AROUND AN OLD NIOBIUM MINE AND TREATMENT PLANT
Silva	Paulo S. C.	Metal distribution in Sediment Cores from São Paulo State Coast, Brazil
SKUTERUD	Lavrans	FOR HOW LONG WILL THE CHERNOBYL FALLOUT CAUSE TROUBLE IN NORWEGIAN REINDEER HUSBANDRY?
SKUTERUD	Lavrans	HOW MUCH HAVE COUNTERMEASURES REDUCED INGESTION DOSES FROM THE CHERNOBYL FALLOUT TO SOUTH SÁMIS SO FAR?
SNEVE	Malgorzata	LINKING RADIOECOLOGICAL SCIENCE, ASSESSMENT METHODS AND REGULATORY DECISION MAKING FOR LEGACY SITE SUPERVISION
Sofya	Sergeeva	POLYMER RADIONUCLIDE-ABSORBING MATERIALS: STRONTIUM IONS SORPTION FROM WATER SYSTEMS
SOLATIE	Dina	RADIOLOGICAL BASELINE STUDIES OF TALVIVAARA MINE AND PLANNED SOKLI PHOSPHATE MINE IN NORTHERN FINLAND
Standring	William	Implementation of the national radon strategy in Norway
Staudt	Christian	Reference biosphere models for dose assessment after release of radio-nuclides from nuclear waste disposals in different climatic conditions
STEINER	Martin	PROTECTION OF NON-HUMAN SPECIES AGAINST IONIZING RADIATION - CONCEPTUAL CHALLENGES AND POTENTIAL IMPLICATIONS FROM A GERMAN VIEWPOINT
stepanet41@mail.ru		GEOCHRONOLOGY OF MODERN SEDIMENTS AT THE DUMPING SITES OF SOLID RADIOACTIVE WASTES IN THE ARCTIC BASIN USING ^{Pb-210} AND ^{Cs-137}
stepanet41@mail.ru		STUDY OF DISTRIBUTION OF ARTIFICIAL RADIONUCLIDES IN THE SURFACE WATER OF INDIAN OCEAN IN 2006-2009
STRAND	Per	Research needs necessary to support the ICRP' s set of Reference Animals and Plants with regard to protection of the environment
STROK	MARKO	Transfer of natural radionuclides from hay and silage to the cow's milk in the vicinity of a former uranium mine
STUART	Marilyne	Fatty acid composition of muscle tissue measured in amphibians living in radiologically contaminated and non-contaminated environments
STUART	Marilyne	BYSTANDER EFFECTS IN BULLFROG TADPOLES
Suursoo	Siiri	Applying gross alpha and beta measurements as an estimate to the total indicative dose of Cambrian-Vendian groundwater in Estonia
Tadevosyan	Anna	CHARACTER OF ARTIFICIAL RADIONUCLIDES (⁹⁰ Sr AND ¹³⁷ Cs) MIGRATION AND ACCUMULATION IN THE SYSTEM IRRIGATING WATER-SOIL-PLANTS DEPENDING ON POLYMERS APPLYING
TAMPONNET	Christian	MODELLING ³⁶ Cl IN SOIL-PLANT SYSTEM: A PHENOMENOLOGICAL APPROACH AND ITS APPLICATION TO THE DISCHARGE OF ³⁶ Cl IN GROUNDWATER FROM RADIOACTIVE WASTE DEEP STORAGE SITE.

TAMPONNET	Christian	Radioecology and Society: a mutual need.
Tänavsuu	Kairi	Environmental monitoring of the decommissioning radioactive waste storage: A.L.A.R.A., Estonia
TAPIO	Dr. Soile	POSSIBLE SYNERGISTIC EFFECTS OF IONIZING RADIATION AND PARTICULATE MATTER IN THE AETIOLOGY OF CARDIOVASCULAR DISEASE
TELLERIA	Diego	Progress in the definition of practical regulatory approaches for the radiological protection of the environment
Tetenkin	Vladimir	TRANSFER FACTOR OF RADIONUCLIDES TO LIVESTOCK PRODUCTS AS A RANDOM VALUE. DISTRIBUTION FORM, PARAMETERS AND RELATED STATISTICS.
Tetenkin	Vladimir	TRANSFER FACTOR OF RADIONUCLIDES FROM SOIL TO PLANTS AS A RANDOM VALUE. DISTRIBUTION FORM, PARAMETERS AND RELATED STATISTICS.
Thinova	Lenka	PROCEDURE OF THE EFFICIENCY VERIFICATION OF THE SLUDGE BED AFTER URANIUM ORE MILL REDEVELOPMENT
THIRY	Yves	Translocation of ¹²⁵ I, ⁷⁵ Se and ³⁶ Cl to edible parts of radishes, potatoes, wheat and beans following foliar contamination: A field experimental approach
Thompson	Manuela	EFFECTS OF CHRONIC EXPOSURE TO LOW DOSE ALPHA RADIATION
Tiruneh	Nebiyu	INTEGRATED APPROACH TO REGULATING, MONITORING AND ANALYZING RADIONUCLIDES IN COMPONENTS OF THE HYDROLOGIC CYCLE
Trybushnyi	Dmytro	Hydrological Dispersion Module in JRODOS: platform for improved aquatic countermeasures modelling and management
TSCHIERSCH	Jochen	Retrospective determination of solubility and mean size of radioactively contaminated aerosol
TSUKADA	Hirofumi	Aging of radioiodine in soil
Turtiainen	Tuukka	Uranium in drinking water: a future challenge for Finnish water supply plants?
TWINING	John	Temporal, spatial and biotic variability in transpirate tritium near a legacy near-surface waste site and research reactor
TYLER	Andrew	EXTERNAL DOSE RATES TO HOUSEBOAT AND RIVERBANK DWELLERS IN AN ESTUARY CONTAMINATED BY ANTHROPOGENIC AND TECHNOLOGICALLY ENHANCED RADIONUCLIDES
Vahabi Moghaddam	Masoud	Fate of Cs-137 in the South Caspian soil
Viehweger	Katrin	INSIGHTS IN MECHANISMS OF URANIUM ACCUMULATION IN ROOTS OF <i>Arabidopsis halleri</i>
Wachniew	Przemyslaw	Vertical distribution of Pb-210 in soils
WALKE	Russell	Modelling soil-plant uptake of radionuclides: Verification and Validation of the PRISM model
WASSERMAN	Maria Angelica	THE EFFECT OF ORGANIC AMENDMENT ON SORPTION MECHANISMS OF RADIONUCLIDES IN HIGHLY WEATHERED SOILS
WASSERMAN	Maria Angelica	APPLICATION OF GEOGRAPHIC INFORMATION SYSTEM AND PEDOLOGICAL ANALYSIS TO DETERMINE THE LEVEL OF VULNERABILITY OF BRAZILIAN SOILS TO A ¹³⁷ Cs CONTAMINATION
WASSERMAN	Maria Angelica	The Influence of Brazilian Soils Properties on Americium Sorption.

WOOD	Michael	Gamma dose rates in the Severn Estuary, UK
WOOD	Michael	Addressing current knowledge gaps on radionuclide transfer to reptiles
WOOD	Michael	Radioecology of temperate coastal sand dunes: A synthesis
WOOD	Michael	Assessing the risks to health from radiopharmaceuticals in the environment
WOOD	Michael	Temporal changes in gamma dose rates in the Esk Estuary, UK
WOOD	Michael	Limit of detection values in data analysis: do they matter?
Wu	Qifan	NORM industries and radiological impact in China
XU	Shulan	HIGH TRANSIENT DOSES AS A RESULT OF ACCUMULATION AND CHEMICAL ZONATION OF LONG-LIVED RADIONUCLIDES ACROSS THE GEOSPHERE-BIOSPHERE INTERFACE: IMPLICATIONS FOR PERFORMANCE ASSESSMENT
YANKOVICH	Tamara	Variation in the transfer of radionuclide to freshwater fish: phylogeny or feeding strategy?
YOSHIDA	Satoshi	TRANSFER FACTORS AND RADIATION DOSES FOR DIFFERENT PARTS OF PINE TREE
Zheleznyak	Mark	TRANSPORT AND DEPOSITION OF CHERNOBYL RADIONUCLIDES THROUGH DNIEPER RESERVOIRS: OVERVIEW OF A QUARTER CENTURY DYNAMICS AND RISK SCENARIOS
Zheleznyak	Mark	CHERNOBYL COOLING POND AS TEST SITE TO STUDY IMPACT OF WATER QUALITY ON RADIONUCLIDE EXCHANGE BETWEEN WATER AND SEDIMENTS
ZUYKOV	Michael	APPLICATION OF ALPHA-TRACK AUTORADIOGRAPHY FOR BIOMONITORING OF URANIUM IN ULTRALOW CONCENTRATION: BROKEN ARROWS ACCIDENTS
ZVONOVA	Irina	DEPENDENCE OF HUMAN INTERNAL DOSE FROM CESIUM RADIONUCLIDES ON SOIL TYPE IN CONTAMINATED AREA OF RUSSIA AFTER THE CHERNOBYL ACCIDENT

附件三

研究備忘錄

**Memorandum of Understanding
on the creation of
European Radioecology Alliance (ERA)**

1/5

PRELIMINARY REMARKS

In the present document, radioecology is defined as the scientific discipline that gathers all the environmentally related knowledge required to assess the impacts of radioactive substances on the environment. Radioecology includes the study of transfer pathways through which radionuclides traverse, and thereby expose or contaminate the environment, and consequently human populations. Radioecology also examines the effects of radionuclides on ecosystems (*i.e.* ecotoxicology of radionuclides). Such studies are important to optimize radiation protection. They are also important to society because any over- or under-estimation of contaminant exposure or radiological effects could lead to unnecessary and costly restrictions, or alternatively, to a lower level of protection for the public or the environment.

Although current radiation protection standards for the public are generally judged to be acceptably robust, there remain considerable scientific uncertainties with regard to dose and health risk assessments. Some of these uncertainties originate from the exposure assessment, which is largely dependent on knowledge of the behaviour of natural and artificial radionuclides in the environment. The acquisition of new scientific knowledge through research in radioecology is therefore a crucial element in improving the public's protection.

The need for a system to protect the environment from ionising radiation has, over the past decade, been recognised internationally. The ICRP has recently addressed environmental protection as an element of its revision of recommendations. Environmental protection is also referred to in the draft revision of the International and European Basic Safety Standards (BSS). Moreover, successive EU projects (FASSET, ERICA, PROTECT) have developed approaches for ecological risk assessments for radionuclides, based on methodologies used for chemical assessments. At this stage, a limitation in the use of these methods is that major knowledge gaps remain in the quantification of radionuclide effects on different taxonomic groups of plants and animals. It is, therefore, important to develop radioecological effects research at the various levels of biological and ecological complexity in order to have sufficient data and understanding to reduce the current uncertainties in risk assessments. The uncertainties are particularly large for effects from chronic, low level exposures and their potential ecological consequences (*i.e.* on the structure and functioning of ecosystems). Moreover, as a portion of such research should focus on the study of effects caused by exposure to low doses and low dose rates, radioecological research could be linked with the work performed within the context of the MELODI platform.

During the last decades, European research in radioecology has excelled such that Europe's foremost expertise is widely recognized. However, there are now clear signs that key elements of this expertise are declining and fragmenting, to a level that it would be difficult in the future to maintain adequate knowledge covering the needs of regulators, society and industry in Europe. Most of the National and EU funded radioecology programmes of the last decade have focused on modeling efforts and data summaries. There has been little acquisition of new basic knowledge, especially through hypothesis-driven, experimental research. The declining competence and expertise in radioecology could have important consequences. Knowledge based radioecological expertise is needed for new nuclear builds (new generation reactors, fusion, ...), for the regulators (concerning *e.g.* emergency planning, NORM, nuclear waste, ...) and in the case of a nuclear accident or terrorist attack.

Radioecology's success in Europe has been based on several large-scale experiences in scientific networking, established at a regional scale or on a thematic basis. For example, NKS (Nordic Nuclear Safety Research) has been an efficient tool for Nordic authorities to acquire a basis for uniform working patterns in quality assurance, environmental measurements, radiological assessments and emergency procedures. More recently, following the ERICA European project, a memorandum of understanding was signed between five European organisations to maintain and carry out further developments on the ERICA tool. Such efforts demonstrate the willingness to develop a sustainable cooperation between organisations. These successful experiences, although not concerned with research programmes, demonstrate that networking, when established, can greatly optimize the use of valuable resources and expertise.

THE PARTIES, CONSIDERING :

- the above preliminary remarks,
 - their respective mission or interest to provide and maintain state of the art research and expertise in radioecology,
 - their important involvement in past and current European Research and Development (R&D) projects under the auspices of the EURATOM research programmes, and
 - the conclusions and propositions of the FUTURAE Coordinated Action within the 6th EURATOM framework,
- Jointly state their intention to bring together, in a step-by-step approach and with an aspiration of sustainability, part of their respective R&D programmes into an integrated trans-national programme that : 1) maintains and enhances radioecological competences and experimental infrastructures in Europe, with an international perspective, and 2) addresses scientific and educational challenges related to the assessment of the impact of radioactive substances on humans and the environment.
- Decide to set up European Radioecology Alliance (ERA) for the purpose of :
- Taking advantage of the review, performed during the FUTURAE project, on current European R&D programmes and related activities (e.g., funding processes, training and education, knowledge management, maintenance and optimization of key experimental facilities), with a view to elaborate proposals towards the progressive integration within the scope of a future joint Strategic Research Agenda (SRA).
 - Working together for a sustainable trans-national organisation capable of elaborating and managing such a SRA and ensuring appropriate interface with the wider research community, including universities and key stakeholders.
 - Preparing a common response to the upcoming EURATOM framework call for the creation of a Network of Excellence (NoE) dedicated to radioecological research, education, public outreach and accountability to stakeholders.
 - Ensuring appropriate exchange of information with relevant organisations in the ERA countries, as well as, EU institutions, particularly the European Commission services and other international organisations or societies (e.g., International Atomic Energy Agency, International Commission on Radiological Protection, International Union of Radioecologists).
 - Providing consolidated, collaborative responses to calls in Europe and the world.
- Decide to jointly review progress made in ERA, and provide guidance through periodic senior management meetings.
- Jointly declare that this initiative will be open to other organisations that have similar missions or interests in the field of radioecology and that are willing and capable to contribute to the goals of ERA.

Executed in 7 (seven) original counterparts, of which one (1) for each parties.

For : Institut de Radioprotection et de Sûreté Nucléaire, France

Name : Jacques Repussard

Position : Director General

Date 02/06/09 Signature



Jacques REPUSSARD
Director General
IRSN

For : Bundessamt für Strahlenschutz, Germany

Name : Wolfram König

Position : President

Date 18.06.09 Signature



For : Centro de Investigaciones Energeticas Medioambientales Y Technologicas, Spain

Name : Juan Antonio Rubio Rodriguez

Position : Director General

Date 17/06/09 Signature



For : Sateilyturvakeskus - Radiation and Nuclear safety Authority, Finland

Name : Jukka Laaksonen

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Date 10.6.2009 Signature



For : Stralsäkerhetsmyndigheten - Radiation Safety Authority, Sweden

Name : Ann-Louise Eksborg

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Name : Ole Harbitz

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For : Studiecentrum voor Kernenergie - Centre d'Etudes de l'Energie Nucléaire, Belgium

Name : Professor Frank Deconinck

Name : Dr. Eric van Walle

Position: Chairman of the Board of Governors

Position: General Manager

Date

Signature

Date

Signature

2009-06-22



12/6/9

