



Message from the President

Dear IUR member,

As you already know, the last election prompted the emergence of a new Board of Council which you mandated me to lead for the coming years. There is quite a challenge now to embark on a further phase of IUR history given today's highly strategic context. On the one hand, political decisions are currently being made worldwide to start replacing the nuclear power plants that have been operating since several decades, strengthening the need for efficient radiological protection. In the other hand, the need for coping with sustainability of life on the planet is seriously growing, pushed by the emergence of large scale ecological disturbances that strengthen the requirement for appropriate protection of the environment from potential stressors. In this context, radioecology that embraces both, human and environmental protection from harm induced by ionising radiation, drives its scientific community, our Union, to a key challenge: for issues that relate to radioactivity, achieving the best symbiosis between man and the environment through synergistic gathering of the various scientific disciplines and approaches concerned.

A prominent role therefore for IUR lies in advancing science in order to unravel radioactivity's fate and impact on the environment and the related evaluation of risk to man and ecosystems. The Union holds a specific responsibility towards anticipating scientific priorities and supporting new directions that will yield innovation.

To tackle this overall goal, international representation within the Board of Council is now significantly improving, a feature that will help the Union's recognition and action worldwide. For the first time in IUR's history, its Executive Committee is now technically and administratively supported by a permanent secretariat, granted by IRSN, held by Mrs Lydie Emonides and located in Cadarache (France). This Secretariat is also at your disposal, and is already helping the Union to substantially progress towards more professionalism.

At its first meeting that took place recently in Cadarache, the Board of Council made important decisions that will drive the strategic plan of the Union for the coming years. These will be presented and discussed in more details during the coming General Assembly, but I would like to highlight here the Union's commitment to launch the construction of an International Observatory that will build upon previous efforts invested in the design of a worldwide network of Radioecology (cf. IUR Reports n° 4 and 5, 2006). Such an International Observatory has already been called for by OECD/NEA who will support it, and would have a role of international data registry and assessment for radiological protection, as well as of international programme coordination. We believe this will offer a challenging goal to the overall membership prone to capture its interest, to reinforce the links between members, and to mobilise its energy and creativity.

I am glad to introduce you to this additional issue of our newsletter that we hope to be able to publish now several times a year. We encourage you to use it further, as well as the Union's web site, in order to promote your own ideas and scientific projects. The full Board of Council is committed to ensure that any member's proposal contributing to the vitality of our discipline will always be considered with much attention. I wish you good readings.

François Bréchignac
President

Message from the President

News from the Secretariat

Scientific News

Announcements

Book Reviews

www.iur-uir.org

Editor: François Bréchignac
IRSN-DESTQ/Dir - Bâtiment 229, BP 3
13115 St Paul Lez Durance - France
francois.brechignac@irsn.fr
Secretary: Lydie Emonides
lydie.emonides@irsn.fr

XXIV General Assembly

The IUR web-based General Assembly took place on 30-31st January 2007, Internet (www.iur-uir.org).

It was the first experience of organizing a meeting via the IUR website but it turned out to be successful: the web-based assembly went off smoothly though a panel of IUR members around the world was connected at the same time. It proves to be an attractive work tool for future IUR meetings.

Agenda

1. Adoption of new Constitution and Byelaws
2. IUR management updates – Next Board election
3. Status of IUR activities and report by the President
4. Financial report and budget
5. Outline of the programme for 2007
6. Any other business

IUR New Constitution

The IUR constitution and byelaws have been registered in 1978 under the Belgian tax legislation, without any major evolution or modification since then. Near 30 years later, some notification was required, and a number of issues deserve updating for a more efficient operation of the Union.

The New Constitution for IUR now in force proposes some main modifications:

- The President may be re-elected to two successive terms, but only once
- No more than half of the Board should be replaced at each election (at a rate of 3 out of 6, whenever possible) to ensure some continuity
- The Board of Council is expanded to 12 persons, 6 of whom are elected from all members, the other 6 from the 6 regions of the world
- The Executive Committee is reduced to 4 individual functions (to be elected out from the 6 first Board of Council members): President, Vice-President, General Secretary and Treasurer
- It is no longer necessary to have a Board member of Belgian citizenship

All members are invited to consult the current constitution and byelaws on the IUR website.

IUR Board of Council 2007 election results

Board members and Executive Committee:

President	F. Bréchignac, France
Vice-President	R. Alexakhin, Russia
General Secretary	P. Strand, Norway
Treasurer	D. Oughton, United Kingdom

Board members:

J.M. Godoy, Brazil
S. Sheppard, Canada

The 6 additional Board members will be elected shortly from the 6 world regions, as per the current constitution.

Finances

The 2005 accounts were cleared by the financial auditor in 2006, and the 2006 accounts are presently under audit. The final report will be available at the end of the year.

OPERATING STATEMENT (Preliminary) 31/12/2003 31/12/2004 31/12/2005

ORDINARY	31/12/2003	31/12/2004	31/12/2005
Income			
Membership fees	4 390	5 583	8 849
Interest	74	56	68
Transactions amendments	0	0	0
Third party support	12 200	0	3 520
Sustaining members		0	0
Total Income	16 663	5 639	12 437

Expense			
General Assembly	-1 270	0	0
Officers and Accountant	-3 357	251	2 456
Board of Council	-2 754	1 424	0
Newsletters and Website	-3 503	-2 464	-1 716
Bank costs & interest & exchange difference	-166	-135	-561
Total Expense	-11 050	-4 274	-4 733
DEFICIT ORDINARY	5 616	1 365	7 704

SPECIFIC ACTIVITIES			
IUR Award	0	0	-1 000
Workshop - Speciation task group	-1 778	0	-2 094
Antwerp Conference	0	0	0
Kiev Conference	0	0	0
Book sales (expenses)	0	0	0
SURPLUS SPECIFIC ACTIVITIES	-1 778	0	-3 094

NET SURPLUS 3 836 1 365 4 610

BALANCE SHEET (Preliminary)

Assets	31/12/2004	31/12/2005
Cash	44 431	49 041
Total Assets	44 431	49 041

Debts and Accruals		
Total Debts	0	0
Income carry over	0	0
Total Liabilities	0	0
NET	44 431	49 041

Fund Balance		
Beginning Balance	43 300	44 431
Years Result	1 132	4 610
Total Fund balance	44 431	49 041

NEWS FROM THE SECRETARIAT

ANTICIPATED BUDGET (2005 for 2006)

Income	Item	Euros	Euros
	Total fund balance	49 041	
	fees	6 500	
	Sustaining members	2 500	
	interest 500	500	
	Exchange rate 0	0	
	Total	58 541	

Costs	Item	Euros	Euros
	Council \ secretariat running costs	1 000	
	Newsletters, website	1 600	
	bank charges	500	
	Accountant	1 300	
	total	4 400	

Task group	Item	Euros	Euros
	Prot Environment Web Review	1 000	
Other	Young researchers award	5 000	
	Travel support members Nice	3 000	
	Total	17 800	

Totals	40 741
Projected balance at end of 2006	41 000
<i>Bank account October 2006</i>	<i>42 956</i>

First meeting of the new IUR Board of Council

The first meeting of the New Board of Council has been held on 30-31 August 2007, Cadarache, France. It endorsed some IUR management updates and the financial report/budget, reported on recent activities, and presented the future orientations and goals. It also identified the main directions for the strategic development of the Union in the coming years.



Standing: Jose Marcus Godoy, François Bréchnignac
Sitting: Deborah Oughton, Per Strand, Rudolf Alexakhin

Agenda

Organisation/administration

- Finances
- Regional coordinators:
- Next General Assembly 2007

Scientific issues

- Task groups: review/update/decisions
- Conference in Bergen
- Publications: Reports, Newsletter
- Education and training courses

Strategy and prospective

- Relationships with other international organisations and programmes
- IUR New Statement
- International Observatory

A summary of the main decisions will be published in the next IUR Newsletter, and will also be available soon on the IUR website.

New members (from October 2005)

Since 2005, the Executive Committee has accepted 25 new members to IUR:

ALIPBEKI Onggarbek	Kazakhstan
ALONZO Frédéric	France
BARILLET Sabrina	France
BONZOM Jean-Marc	France
CAROLL Simon	Sweden
CHABROUILLET Christophe	France
COPPIN Frédéric	France
DARCHEVILLE Olivia	France
DEMONGEOT Hélène	Switzerland
DUFFA Céline	France
DUQUESNE Lise	Belgium
FEVRIER Laureline	France
GILBIN Rodolfe	France
HARB Shaban	Egypt
HARDEMAN Franck	Belgium
HASHIM Naddir	Germany
JOHANSEN Mathew	USA
PRADINES Catherine	France
RIGHI Serena	Italy
SICKEL Morten	Norway
SOUBOUROU Pierre	France
STANDRING William	Norway
TURCANU Catrinel	Belgium
VOITSEKHOVICH Oleg	Ukraine
WALKE Russel	United Kingdom

New Sustaining Membership

LERCM Laboratory, IRSN, Cadarache, France

Permanent Secretariat

For the first time in its history, the IUR will benefit from the recent establishment of a permanent secretariat that will support the day-to-day life of the Union. This is fulfilled by Ms Lydie EMONIDES who has been appointed by IRSN, as a sponsorship to the Union, based on a half-time position.

Ms Emonides has a long experience of secretarial affairs gained through successive positions at the Division of Radiological Protection and Human Health of IRSN. She will be the practical focal point of the Union in the coming years.



The secretary is at your disposal for any information, contact her at: lydie.emonides@irsn.fr.

Website News

Visits to the IUR web site exceeding 10,000 per month

For the first time in its history, the monthly rate of visits to the IUR web site has exceeded 10,000 reaching to 10,712 in July 2007.

This achievement is reflecting all together:

- the vitality of the Union,
- the worldwide renewed interest towards radioecology as a discipline,
- the visibility and audience of the Union's activities (Task Groups, IUR reports and publications, Conferences and seminars, etc...)

The frequency of visits on the IUR web site is a proof of its efficiency to share and disseminate relevant information.

All IUR members are encouraged to make maximum use of this web site, either directly, or through the webmaster when appropriate, to advertise, illustrate, exchange, on all relevant radioecological matters (news, links, illustrations, publications, conferences, forum and contacts).

Please also note that some dedicated areas, restricted to some Task Groups members, are currently being designed to support the sharing of their collaborative work.

The impact of the radioecological community can be greatly enhanced by the vitality exhibited on its web site, such as frequent updates, early news warning, expert analysis of current issues of high social relevance or concern.

So don't hesitate to catch the last news by visiting the IUR web site at: <http://www.iur-uir.org>

All IUR Members are welcome to suggest views and ideas on the IUR web site. Write to webmaster@iur-uir.org.

IUR-sponsored Conference



During the 9th International Conference on the Biogeochemistry of Trace Elements (ICOBTE) held on 15-19 July 2007 in Beijing, a special Symposium entitled:

“Fate and Transport of Radionuclides in the Environment” was organized with financial support from the International Atomic Energy Agency (IAEA) and the International Union of Radioecology (IUR).

This two-day long symposium consisted of 21 oral and 16 poster presentations, with participants from 18 countries (Armenia, Belarus, Belgium, Bulgaria, China/Taiwan, Czech, England, France, Germany, India, Japan, Kazakhstan, Korea, Lithuania, Norway, Russia, Ukraine, USA). The presentations covered various topics including radionuclide discharge from nuclear power plants, radionuclide transfer in soil-plant systems, and radionuclide speciation and transformation. A special issue of Journal of Environmental Radioactivity will be published to include some of the presentations.



Anna Nalbandyan and a viewer at the front of her poster in Beijing

Funding from the IUR has mainly supported a young researcher, Anna Nalbandyan, for her travel and presentation in the symposium. As a member of IUR, Anna is currently working in the Laboratory of Radioecology in the National Academy of Sciences of Armenia. Her presentation is entitled "Studying radioactivity of the water of rivers Kura-araks Basin".

For more information on this symposium, contact Qinhong Hu (hu7@lnl.gov)

Obituaries

Panayotis A. Assimakopoulos (1940 – 2007)

On May 7, 2007 Prof. Dr. Panayotis Assimakopoulos, Professor in Nuclear Physics at the Department of Physics at University of Ioannina, Greece, died unexpectedly due to cancer. With him the radioecological science community lost not only an international recognized excellent scientist but also an extraordinary personality.

Panayotis was born on February 16, 1940 in Athens, Greece, and was married to Jane Ann Nisselsen, with whom he had two daughters: Anna-Michelle and Daphne-Eugenia. He obtained his B.A. in Physics in the United States at the Brandeis University in 1961, and his M.S. in Physics at the Rutgers University in 1969. In 1971 he graduated with a PhD in Physics at the Thomas Jefferson University. Back in Greece from 1974 onwards he joined the University in Ioannina, Department of Physics, where during the period of 1977 until his death he held the position of the director of the Nuclear Physics Laboratory. In the period 1983 - 1986 and 1991 - 1995 he was elected as chairperson to the Department of Physics. Among others, in 1984/1985, he was also a visiting professor of Physics at the Department of Radiology, School of Medicine at the University of California, San Francisco. He wrote numerous books and scientific articles in international journals and proceedings of international conferences in the field of nuclear physics and environmental radioactivity and radioecology. In 2003 he served as a guest editor to the Journal of Environmental Radioactivity for the special issue on Depleted Uranium (Vol. 64), and he reliably served the editorial board as a board member for years.



With the bereavement of Panayotis we loose an excellent scientist and a person, who has not only impressed us with his high level knowledge but also one who has charmed everybody with his sense of humour and his approach to life. Unforgettable are the EC group meetings either in Greece or anywhere else in Europe, when we continued our scientific discussions in a more relaxed and informal atmosphere in the hotel bar or nice little restaurant outside or even in his own vineyard.

Later Panayotis pulled out his pipe and started to talk jokes, the most famous being the one on *ESCARGOT* (insiders will understand). I also never forget when my colleague and friend Brenda Howard and myself were invited by him and allowed to accompany him into a famous gentlemen clubhouse in Athens - even visited by royal family members!- for a luncheon, a place normally with a strict access limitation to females. He even succeeded to welcome you personally at the airport before the customs and passport control. And how we laughed about the famous metabolic cages for Greek sheep, made of wood and not as usual of stainless steel, but suiting their purpose! Panayotis succeeded even to convince us «animal people» that the fitting of a curve based on physical/mathematical statistical approaches is a valid method although the experimental values on milk transfer to sheep showed a slightly different value.

On behalf of all radioecologists in IUR and in Europe I dare to say: Good bye Panayotis; we will miss you, your valuable advice, your dedication and your friendship.

by Gabriele Voigt, Director of IAEA Laboratories, Seibersdorf

John Ferris



It is with deep regret that we announce the untimely death of Dr John Ferris. John was a limnologist who worked at the Australian Nuclear Science and Technology Organisation as a radioecologist.

In recent times, John worked closely with IUR members associated with the FASSET, ERICA and now the PROTECT working groups.

He was well respected by those who knew him for his commitment and contributions to developing world's best practice radioecological risk assessment methodologies. He was also well liked for his dry sense of humour and kind nature that were always on display.

At the time of his death, John was leader of the Environmental Monitoring Group at ANSTO. He will be sorely missed.

«PROTECT» Project

Protection of the Environment from Ionising Radiation in a Regulatory Context

A system to protect the environment from ionising radiation is now actively being considered by many international and national bodies. The focus, of the considerable effort on this issue over the last decade, has been on collating relevant information and developing approaches to enable regulatory assessments. Verification and comparison of the radioecological and dosimetry components of various approaches has also begun. However, it is important that any approaches used are practicable, credible to stakeholders and fit for purpose in any future regulatory context. Concerns have been expressed both from the nuclear industry and the scientific community that the developing approaches may lead to costly regulation.

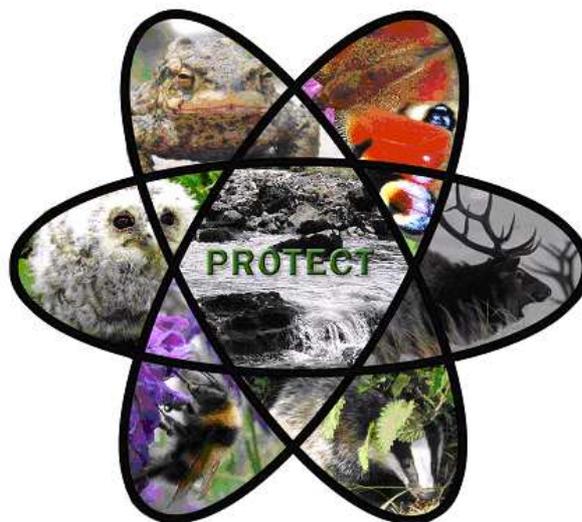
The EURATOM FP6 funded **PROTECT** project (<http://www.ceh.ac.uk/PROTECT/>) is evaluating different approaches to protection of the environment from ionising radiation and will compare these with the approaches used for non-radioactive contaminants. The project aims to provide a scientific justification on which to propose numerical targets or standards for protection of the environment from ionising radiation. To achieve this, the PROTECT project is consulting widely within Europe and the broader international community with industry, regulators and NGOs to review regulatory instruments, procedures, underlying principles and criteria currently applied to environmental protection from both chemical and radioactive substances.

The PROTECT consortium is co-ordinated by the Centre for Ecology and Hydrology (UK) (Brenda Howard – bjho@ceh.ac.uk), the other partners are the Swedish Radiation Protection Authority, Institute for Radiological Protection and Nuclear Safety (France), Norwegian Radiation Protection Authority and the England and Wales Environment Agency. The project is built upon three work packages:

- Work Package 1: Environmental protection
- Work Package 2: Assessment approaches: practicality, relevance and merits
- Work Package 3: Requirements for protection of the environment from ionising radiation.

Each of them has specific associated expert groups.

In **Work Package 1**, with the aid of participants in a workshop (held in Chester (UK) March 2007), we have been identifying similarities and differences in approaches for chemicals and radioactive substances and evaluating the extent to which these fulfil the objectives of environmental protection taking into drawn from both the nuclear and chemical sectors.



It will identify key information for Work Packages 2 and 3 helping to determine the appropriateness of standards that can be used to demonstrate environmental protection from the effects of ionising radiation and address the issues of the cost or burden of any environmentally derived regulation.

A number of approaches/tools for use in the protection of the environment from ionising radiations have been produced or are being developed. Some of these are now being used in a regulatory context.

The primary aim of **Work Package 2** is to evaluate these approaches considering: practicability; acceptability and relevance of the approaches with respect to the requirements of regulators and industry (as identified by Work Package 1); assess the user friendliness of the approaches to potential users.

The Work Package will also apply any numerical targets recommended by Work Package 3 (and others). To help assess the relative merits of the available approaches they are being applied to a number of scenarios.

In part this is taking place within workshops involving experts independent of the PROTECT consortium in order to evaluate the usability and transparency of the different approaches to groups other than those involved in their development (the first workshop was held in Vienna during June 2007).

During the Vienna workshop the three approaches readily available to third parties (i.e. RESRAD-BIOTA, the ERICA-Tool and the England & Wales Environment Agency's R&D128¹) were applied to a scenario based loosely upon data from an assessment conducted within the UK. The models all predicted that dose rate screening levels (which vary between the approaches) would be exceeded.

However, different limiting radionuclides and organisms were identified by each model with maximum predicted

The objectives of **Work Package 3** are to propose benchmark values (dose rates, doses, or media activity concentrations) that could be used in a regulatory process.

¹ See the PROTECT web site for more information on these tools http://www.ceh.ac.uk/PROTECT/pages/env_protect_radio.html

Important steps on the way to suggesting benchmark values are decisions on appropriate protection goals (e.g. the level and target of protection) and the method of deriving values corresponding to these protection goals (e.g. safety factors, species sensitivity distribution, comparison with background levels) corresponding to relevant protection goals.

Work Package 3 utilises the information on these matters provided by the outputs from Work Package as well as interact with Work Package 2 on assessment tool methodological considerations in order to set the framework for the derivation of numerical benchmark values. The derivation of numeric values will utilise the FREDERICA radiation effects database (www.frederica-online.org). The outcome of this Work Package, i.e. suggested protection goals, derivation methods and resulting benchmark values, will be summarised in a consultation document (due February 2008), and comments will be solicited from experts within regulatory, industrial and non-governmental organisations through a web consultation procedure as well as at a workshop (May 2008). Comments will be requested on issues such as appropriateness of protection goals and methodology of derivation of numerical values as well as implications for industry, regulators and society in general, i.e. costs and benefits of assessment.

Consultation within the PROTECT Project

To be successful, the PROTECT project needs to consult with a wide range of interested parties including regulatory bodies, international organisations, NGO's and industry. In part, this is being achieved by holding focused workshops. The reports of the first two workshops are available from the PROTECT website:

<http://www.ceh.ac.uk/protect/outputs/>

Presentations made during the workshops can also be viewed on the website.

Future workshops will be:

- ✚ • Work Package 2: 28th-30th January 2008 (Oslo)
- ✚ Contact nab@ceh.ac.uk to register an interest in participation.
- ✚ • Work Package 3: 14th-16th May 2008 (Aix-en-Provence)
- ✚ The Work Package 3 workshop will be an open meeting (up to c. 50 participants) to discuss:
 - ✚ • suggested levels of protection,
 - ✚ • proposed target values to ensure protection level compliance

Anyone interested should contact Pal.Andersson@ssi.se to register for further details of this workshop.

PROTECT distributes a newsletter to all interested parties by email – if you wish to receive future issues please email nab@ceh.ac.uk (newsletters are also available from the PROTECT website).

Brenda Howard
PROTECT Co-ordinator

«FUTURAE» Project

A future for radioecology in Europe

Started in October 2006, the primary objective of the FUTURAE European project is to evaluate the feasibility of network(s) to maintain and enhance competence and to



enhance sustainable collaboration in the field of assessment and management of the impact of radionuclides on man and the environment.

To reach this objective, FUTURAE proposes a number of tasks that includes:

- (i) evaluation of the current situation of research in radioecology in Europe and beyond (scientific programmes, human resources, infrastructures, funding),
- (ii) focused interaction with end-users representing national bodies, competent authorities, industry and scientists to assess the present and future needs in radioecology,
- (iii) evaluation of the capacity to support future needs and identification and prioritisation of new challenges considering potential avenues for better collaboration in broader areas of environmental sciences.

From these tasks, the output of the project will be an evaluation of the potential for establishing deeper and sustainable collaboration in radioecology possibly in the form of Network(s) of Excellence. The suitable scope, extent and structure of the network(s) will be explored.

The FUTURAE project is implemented through the coordination of four technical work packages, in accordance with the specific objectives set out below:

- **WP1** – Update and analyse information on the status of radioecological research in terms of funding, human and infrastructure resources and research programmes in Europe and all over the world; Integrate information on the future of individual research groups and institutes to clearly identify the research potential;
- **WP2** - Assess the present and future needs of end-users (authorities, industry, decision-makers, scientists, higher education, international organisations e.g. IAEA, ICRP, IUR), and the related requirements with respect to the assessment and management of the impact of radionuclides on man and the environment;
- **WP3** - Evaluate the radioecological capacity to support the future needs, give priority with regard to previously identified requirements and highlight new scientific challenges, considering potential avenues for better collaboration with broader areas of environmental sciences;

knowledge management structure at the European level; Assess how to maintain Europe's acknowledged lead in the field of radioecology and how to promote dissemination of this European competence within new member states; make practical propositions for the implementation of network(s) of excellence;

During its first year, the work of the consortium was devoted to WP1 and WP2. To achieve the objectives of WP1, we analysed responses to a targeted questionnaire sent to research groups, government authorities, consultants and industry who are known to have been engaged in radioecological research either directly or through supportive funding. In this report the results of the questionnaire are presented and analysed. In total, 354 questionnaires were sent out and 89 completed questionnaires were returned. Except for Cyprus, Luxembourg and Malta, at least one reply for each EC country was received. We received additional replies from non-EC countries including Switzerland and Norway. Most replies were obtained from universities (44), followed by research institutes (28), government authorities (12) and consultancies (5). The results of the questionnaire are presented and analysed in a deliverable that can be found on the FUTURAE website: www.futurae.org

To achieve WP2 objectives, information was collated on future needs and requirements from end-users of radioecological research/expertise within Europe, including regulators, industry, international and non-governmental organisations. Consortium members and the End-User Group then reviewed the collated information presented in a draft report. The review was used as the basis for discussions and conclusions at an End-Users workshop on needs and requirements (Stockholm; 12-13 June 2007). The WP2 deliverable will be soon available on the FUTURAE website. Final conclusions of the project are expected in October 2008.

Jean-Christophe Gariel, Co-ordinator of the Project
(jean-christophe.gariel@irsn.fr)

NCRP Report No. 154, Cesium-137 in the Environment: Radioecology and Approaches to Assessment and Management

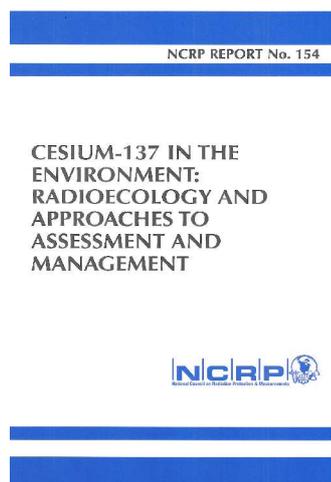
In December 2006, the National Council on Radiation Protection and Measurements in the United States published Report No. 154 entitled "Cesium-137 in the Environment: Radioecology and Approaches to Assessment and Management". The report was prepared by committee members Charles Garten, David Hamby, Kathryn Higley, Thomas Hinton, Daniel Kaplan, David Rowan, Gene Schreckhise and Ward Whicker, who served as chair.

Within the last 25 years, a great deal of research on radiocesium in the environment has been published.

This work was motivated in the U.S., in part by a new emphasis on environmental cleanup and remediation of sites that had been contaminated with radioactive material as a result of its historic nuclear weapons program. In many cases, ¹³⁷Cs has turned out to be the most important residual radionuclide with respect to dose and risk to humans and other organisms, and thus has heavily influenced formal assessments and management decisions.

Then of course, in April of 1986 the Chernobyl accident in the Ukraine caused massive releases of radioactivity to the environment. A few months after the accident, ¹³⁷Cs became the key residual contaminant which affected the management of agricultural and urban environments, not only within the 30-kilometer exclusion zone, but also throughout much of Europe.

This event spawned a very large number of studies on the environmental behavior of ¹³⁷Cs, as well as on practical countermeasures that could be used to reduce health risks to people affected by contaminated agricultural systems and urban settings in Europe.



Finally, situations such as the decommissioning of commercial nuclear power plants, siting and licensing of new nuclear power reactors, and the threat of the use of "dirty bombs" by terrorists provides additional rationale for better knowledge on the environmental transport and human health risks posed by ¹³⁷Cs contamination.

The general goals of NCRP Report 154 are to summarize our current state of knowledge on radiocesium in the environment and to identify future management issues concerning ¹³⁷Cs-contaminated ecosystems. Current knowledge and concepts concerning sources, levels in the general environment and at selected U.S. Department of Energy sites, environmental transport processes, parameters and models, and the management or mitigation of contaminated environments is described.

This report is intended to provide a general review of knowledge about sources and levels, natural processes that explain the highly varied behavior of radiocesium in aquatic and terrestrial ecosystems, guidance for choosing transport parameters for dose and risk assessment models, and practical approaches that have been used to mitigate the impacts of significant levels of contamination.

Inaccuracies and uncertainties resulting from the use of generic parameters for pathway analysis dose models discouraged the adoption of specific parameters in this report.

Instead, the report focuses on general environmental transport concepts and the range of parameter values that have been empirically measured or estimated in different situations.

In many cases, the report provides likely reasons for the wide ranges of parameter values that have been published. In practice, it is generally believed that site and condition-specific measurements lead to the most credible assessments, and so this approach is strongly recommended when possible.

Ward Whicker (Ward.Whicker@colostate.edu)

ICRP Committee 5

A new committee of ICRP has been established in 2005 and assigned the task to develop a framework for the protection of the environment from harmful effects of ionizing radiation.

Based on the conclusions from a previous Working Group (published in 2003, as ICRP N°91), the new committee has the objectives of developing an approach of environmental radioprotection that is both:

- ✚ Compatible with the existing system of human radiological protection
- ✚ Coherent with other systems of environmental protection against other stressors

In order to fulfil the first objective, the committee currently develops the “Reference Animals and Plants” (RAPs) concept as originally suggested by IUR in 1997 and has established a Working Group that handles the associated dosimetry required.

The second objective is being tackled by a dedicated working party that is brainstorming on how broadening this first conceptual approach to meet broader trends and prospects in environment protection.

Leader of Committee 5: Jan Pentreath



ICRP C5: a few members during their meeting in August 2006 in Corvallis, Oregon

ACTIVE TASK GROUPS

Task group on Radioecology and non-radioactive pollutants

Protection in a Multipollution Context

Both man and the environment are exposed to multiple pollution sources from industrial activities, urban activities, agriculture, traffic, etc. This has resulted in pollution scenarios where organic (PAH, PCB, pesticides, etc.) and inorganic (heavy metals, radionuclides) pollutants are present simultaneously. Abiotic and biotic stressors usually do not operate independently, but rather interact to produce combined impacts on biodiversity and ecosystem functioning. The presence of mixtures of contaminants (and stressors) may on the one hand affect pollutant geochemical behaviour but also the response of organisms when they are exposed. Notwithstanding this, the environmental behaviour and effects induced by contaminants has generally been studied for individual pollutants (single stressor studies).

Very few studies have considered the behaviour and effects induced by natural or artificial radionuclides in a representative multi-stressor context. However there are many examples where radiocontaminants occur in association with other contaminants and where assessment of the (combined) effect on the environment could be an issue; e.g. discharges from the nuclear industry (particularly reprocessing), contamination following extraction and processing NORM.

Understanding multiple stressors is particularly challenging when their combined effect cannot be predicted based on evidence from single-stressor studies, i.e. where interactions that cause non-additive effects occur. There is a pressing need to develop and test a general set of methodologies and theories in order to provide a confident basis for the prediction of multiple stressor effects.

The main emphasis of the IUR Task group for Protection in a Multipollution Context is to bring together experts involved in experimental research and model development in the closely related areas of environmental chemistry and toxicology. It has the following primary objectives:

- ✚ Bridge the gap between radioecology and other areas of environmental contamination and toxicology through identification of synergies;
- ✚ Identify interested researchers and facilities where multipollution research is or may be conducted;
- ✚ Review literature on behaviour and effects of radionuclides in a multipollution context and compare approaches in study of environmental behaviour, environmental risk assessment and effects analysis in the study of conventional contaminants and radiocontaminants;
- ✚ Identify knowledge gaps and prioritise research needs;
- ✚ Establish common research programmes.

SCIENTIFIC NEWS

To help establish these objectives, an interactive website containing a research expertise questionnaire was set up to collate information on the following:

- ✚ Knowledge gaps and to prioritise research requirements to address them;
- ✚ Research groups working on the issue of multipollution, their interest in this study and/or capacity to conduct multipollutant studies.

The results of the questionnaire were reported (IUR Report 4, 2006) and following priority areas for future R&D multipollution programmes were highlighted:

1. a better understanding how the multipollution context affects the behaviour of a single pollutant;
2. the study of additive and synergistic effects;
3. response of biota to multiple stressors;
4. optimised remediation strategies for multipollution scenarios based on improved knowledge on effect of environmental parameters on pollutants; (5) better understanding of uncertainties in a multipollution context.



Of the 19 respondents to the questionnaire, seven organisations indicated that they would be interested in performing common multipollutant transfer and effects experiments/studies under laboratory conditions and nine under field conditions.

Nine organisations would be interested in setting up a mutual collaboration in context of performing Environmental Risk Assessment (ERA) at multipolluted sites or contribute to a comparison of approaches to ERA in a multipollution context.

It is the intention to organise a 1-2 day workshop in 2008 with the aim of establishing a common research programme on multiple pollution issues. Starting with the priority research areas identified following the questionnaire, a core group will prepare a preliminary working document with potential approaches to common research and collaboration.

A key-expert in multiple stressors studies and a key expert in environmental risk assessment in a multipollution context will be invited to give a presentation. The presentations and the preliminary working document will be the basis of a discussion to set up a common collaboration programme.

Organisations who replied to the questionnaire will be invited to participate at this workshop. Other organisations will be notified of this workshop through the IUR-website.

We hope to organise this workshop linked to another major meeting (for example the Bergen conference or an end-user group meeting of EC-FUTURAE or EC-PROTECT project).

Hildegard Vandenhove (hvanden@eckcen.be)
David Copplesone
(david.copplesone@environment-agency.gov.uk),
Co-ordinators of Radioecology and non-radioactive pollutants Task group

Task Group on Radiological Protection of the Environment

The Task Group has focussed on identifying and prioritising research requirements in the field of environmental protection from ionising radiation. Last year we published the results of a web based consultation (IUR report No. 5) as a PDF document and this year we have been distributing hard copies of the report. Most of the hard copies have now been distributed but if you have not received your copy yet you should do shortly.

The web based consultation was split into two parts with the aim of identifying knowledge gaps and to prioritise the research requirements and to identify researchers and facilities who might be able to undertake research to address the data gaps. In total 41 researchers/organisations responded to the consultation and the report describes their research interests, capabilities and facilities.

The results from the consultation on research priorities have identified the following areas for future research:

- 1) Transfer of radionuclides in the environment**
 - a. Better understand the processes that determine how radionuclides transfer through an ecosystem (to facilitate improved modelling)
 - b. Improve estimates of uncertainties in transfer factors
 - c. Understand the role chemical speciation plays in determining transfer rates
 - d. Determine transfer factors for particular radionuclides and biota
 - e. Consider dynamic modelling techniques to predict transfer under transient or short term conditions
- 2) Effects of ionising radiation on biota**
 - a. Understand the interaction between ionising radiation and non radioactive contaminants and other environmental stressors
 - b. Understand more about how radiation induces biological damage (e.g. genomic instability, bystander effect)

- c. Undertake radiation effect experiments on particular wildlife groups (e.g. amphibians, reptiles) to fill in data gaps
- d. Undertake radiation effect experiments on particular wildlife groups (e.g. amphibians, reptiles) to fill in data gaps
- e. Establish whether localised exposure (e.g. to organs) is important in terms of demonstrating protection of the environment from ionising radiation
- f. Establish no effect levels for different radiation types for reproductive endpoints in groups of biota
- g. Understand the differences between effect and harm and investigate indirect ecological effects of exposure to ionising radiation

1) Dosimetry

- a. Develop radionuclide retention models for different biota
- b. Undertake quality assurance on the dosimetry approaches that have been proposed or are in use
- c. Evaluate uncertainties associated with the different dose conversion coefficients that have been proposed

2) Gas in the assessment frameworks to demonstrate protection of the environment from ionising radiation

- a. Provide better estimates of uncertainties in assessments
- b. Provide information on spatial and temporal averaging of radionuclide distributions
- c. Use more ecological data to allow us to measure/predict changes that area already occurring

The next phase for the Task Group will focus on how to coordinate efforts to address the identified research priorities and, through discussions with research founders, identify sources of funding to allow the research to be undertaken. It is hoped that there will be a meeting of the Task Group at the Bergen conference to move this agenda forward.

David Copplestone, Task group leader
(david.copplestone@environment-agency.gov.uk)

Task group on Radioecological sensitivity

An operational tool in federating radioecological knowledge »

In June 2007, the IUR task group on radioecological sensitivity launched its collaborative website. The website hosts three areas exclusively reserved to the members of the task group and accessible with ID and password from the IUR website <http://www.iur-uir.org/sensib>.



1. The first area called “draft documents” is a working area devoted to the easily writing of documents in a collaborative way.

In this area, each member of the task group is able to work on preliminary version of a document

(.doc, .rtf ...) and can modify and create new versions of the document.

The traceability of the evolution of each document is assured. A system of e-mailing alert is operational to inform each one of the current state of a document. The aim of this area is, inter alia, the writing of progress documents of the task group and, as soon as the documents are validated by all the members, they will be moved from the working area to the home-page of the task group which is access-free.

1. The second area called “bibliographic documents” is a private library where each member can read PDF documents but not modify them. This area constitutes the shared bibliographical basics for the task group.

2. Finally, there is a forum where all members can discuss on line about all relevant subjects.

This innovative working way is devoted to scientific exchanges on the improvement of operational tools based on radioecological sensitivity concept. Since 2003, the French Institute for Radioprotection and Nuclear Safety (IRSN) developed a research program called SENSIB on that subject. The main results of the SENSIB program are already on line on the collaborative website.

See you soon on our website ...

Catherine MERCAT, Task group co-leader
(catherine.mercat-rommens@irsn.fr)

Task group on Revision of TRS 364

TRS 364 Working group: Revision of IAEA Technical Report Series No. 364, “Handbook of parameter values for the prediction of radionuclide transfer in temperate environments”

In 1994 the IAEA published the Technical Reports Series No. 364 (TRS 364) "Handbook of parameter values for the prediction of radionuclide transfer in temperate environments". Over the years, it has proved to be a valuable reference for radioecologists, modellers and authorities in Member States, and has been quoted in numerous impact assessments. However, TRS-364 was based on a review of available data up to the end of 1992. A number of high quality critical reviews have been produced in recent years for some of the transfer parameter values which merit consideration. Thus, one of the working groups of the IAEA EMRAS ("Environmental Modelling for Radiation Safety") project has been launched in 2003 to initiate an updating of that report. The overall objective of this working group was to provide both revised transfer parameter values and missing data.

The specific task of TRS-364 development was to provide reference values for the most commonly used transfer parameters in radiological assessment models. However, some important details and recommendations on how to use these parameters were often omitted that did not allow making relevant choice of necessary parameters.

ANNOUNCEMENTS

This problem has been resolved by the TRS revision Working Group by the preparation of two separate but well linked documents i.e. the Technical Reports Series document focused on the reference information intended for radiological assessment and the IAEA TECDOC intended for justification of radioecological information used to derive reference values.

Up to now, the draft TECDOC entitled by “Radioecological models and parameters for radiological assessments” has been produced and edited. A final version of the document is expected to be prepared in June 2007. The TECDOC is intended to be a supportive document for the updated TRS-364 overcoming the limitations of the former document, and comprises both revised transfer parameters values, missing data, key transfer processes, concepts and models which were found to be important for radiation safety. Simultaneously, main outputs of this activity will be published in a special issue of JER (Journal of Environmental Radioactivity).

The revised TRS 364 (to be used as a handbook) will be substantially extended compared to the former document, but will be a more concise than the TECDOC, following the structure:

- Definition
- Description of processes
- Parameters
- Limitations
- Tables of parameter values
- Comments and recommendations (identification of gaps)

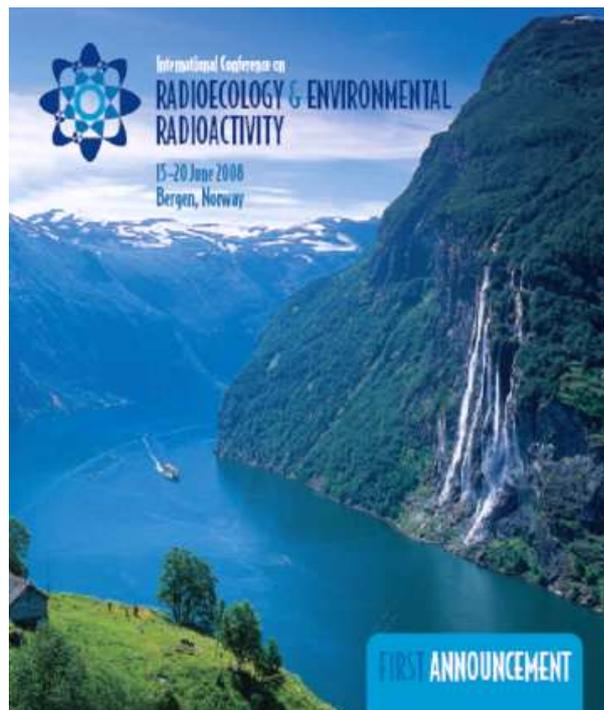
The first draft of the revised TRS has been available since June 2007 and a final draft is anticipated to be prepared by the end of 2007. It is also expected that these two documents will be published in 2008 as a one package of documents covering needs of both regulators and assessors in radioecological data for assessing site-specific past, present and future radiation exposures to humans and biota species in terrestrial and freshwater environments.

Ph. Calmon (philippe.calmon@irsn.fr),
S. Fesenko (S.Fesenko@iaea.org) and G. Voigt
(G.Voigt@iaea.org)

More information is available on:
<http://www-ns.iaea.org/projects/emras/emras-trs364-wg.htm>

The next meeting of this Working Group will be held in conjunction with the Fifth Combined Meeting of the EMRAS Programme at the Agency's Headquarters in Vienna from **5 to 9 November, 2007**.

Forthcoming Conferences



The First international conference of Radioecology and Environmental Radioactivity will be held in [Bergen, Norway](#), on **15-19 June 2008**.

This conference results from merging the previous ECORAD series and the International conference on radioactivity in the environment series, and will be organised every 3d year in different host countries.

See more details on the websites:
<http://www.risques-chroniques.com/Radioecology2008/>
<http://radioecology.info/Bergen2008/>

The IUR Task group 'Speciation of radionuclides' and the Norwegian University of Life Sciences will arrange a special session on speciation and hot particles as part of this International conference. More information will be soon on the IUR website.

Organized by

- ✚ Norwegian Radiation Protection Authority (NRPA)
- ✚ Institut de Radioprotection et de Sûreté Nucléaire (IRSN)

in collaboration with

- ✚ International Union of Radioecology (IUR)

and co-operation with

- ✚ International Atomic Energy Agency (IAEA)
- ✚ International Commission on Radiological Protection (ICRP)
- ✚ Organisation for Economic Co-operation & Development (OECD)
- ✚ Nuclear Energy Agency (NEA)
- ✚ Journal of Environmental Radioactivity (JER)

ANNOUNCEMENTS

IRPA 12: Strengthening Radiation Protection Worldwide

The 12th International Congress of the International Radiation Protection Association (IRPA 12), to be held October 19 to 24, 2008 in Buenos Aires, Argentina, is fast approaching. IRPA 12 will be hosted by the Argentine Radiation Protection Society and will take place at the Buenos Aires Sheraton Hotel and Convention Center.

The International Congress Program Committee (ICPC) invites authors to submit papers on any of the Topics of the **IRPA 12 Scientific Program**. Abstracts must be received before the deadline of **1st December 2007**. Detailed information on abstract submission can be found on the IRPA 12 Web Site.

The Congress will focus on three major areas:

- ✚ The epistemology of radiation, namely the methods, the validity and the scope of current knowledge of the physical and biological sciences in relation to the effects of radiation exposure.
- ✚ The paradigm of radiation protection, namely the conceptual model for keeping people safe from the health effects due to radiation exposure
- ✚ The practice of radiation protection, namely the actual application and use of radiation protection plans and methodologies by practitioners and industries making use of radiation.

For further information on the IRPA 12 meeting please visit: <http://www.irpa12.org.ar/index>

The **8th International Symposium on the Natural Radiation Environment (NRE-VIII)**

being organized under the aegis of the Natural Radiation Environment Association (NREA) in cooperation with the International Atomic Energy Agency, which will be held in **Búzios, Rio de Janeiro, Brazil, 7-12 October 2007**.



The main topics to be addressed in the NRE-VIII are the following:

Cosmic radiation, solar activity and cosmogenic radionuclides; High background areas; Radon, thoron and other terrestrial radionuclides; NORM/TENORM; Dosimetry and health risk assessment; Exposures to biota; Metrology, modelling and epidemiology BSS and legal issues; RDD (dirty bombs) and terrorism; Non-ionising radiation (NIR) and the NRE; Geochronology; Natural radioactivity and the theory of time.

More details can be found in the site www.ird.gov.br/nre

Workshops

Following publication of the IUR Report 6, the next **“Radioecology and Waste”** Task Force workshop is to be held in Madrid, 9-11 October at the CIEMAT offices. In essence the meeting will begin on Tuesday 9th October and end lunchtime on the 11th October. Three areas will be covered:

- ✓ review and agree on the generic interaction matrices from IUR Report 6;
- ✓ talks on three radionuclides (elements: Se, I and potentially Ni) in both terrestrial and aquatic environments
- ✓ discussions of each three nuclides to incorporate important processes based on the interaction matrices.

If interested, please contact Irene Zinger to receive further information: irene@facilia.se

A **Radionuclide Speciation Workshop** at Jackson Hole (WY, USA) on 27–28 October 2007 will be held in conjunction with the 53rd Annual Radiobioassay and Radiochemical Measurements Conference organised by National Institute of Standards and Technology (NIST), Council on Ionizing Radiation Measurements and Standards (CIRMS), International Atomic Energy Agency (IAEA-MEL), Norwegian University of Life Sciences (UMB) and IUR Task group 'Speciation of radionuclides'.

Contact kenneth.inn@nist.gov

Further information on:

http://www.nist.gov/public_affairs/confpage/07102

IUR Task group 'Speciation of radionuclides' and the Norwegian University of Life Sciences will arrange a special session on **Speciation and hot particles** as part of the Int. Conference on Radioecology and Environmental Radioactivity to be held in Bergen.

Topics of interest for this special session will include: the use of adequate techniques to characterize radionuclides species, linking and quantifying radionuclides species to sources and release scenarios, linking and quantifying radionuclides species to environmental airborne, marine or freshwater transport processes including models, identifying and quantifying radionuclides species and transformation processes influencing mobility and bioavailability of radionuclides, relating the distribution of different radionuclide species to external doses, and relating radionuclides species to internal redistribution within organisms to improve dose estimates for biota.

ANNOUNCEMENTS

A "**Workshop on Science and Values in Radiological Protection**" will take place in Helsinki, Finland, from the 15th to the 17th of January 2008.

It is co-organized by the OECD Nuclear Energy Agency in collaboration with the Radiation and Nuclear Safety Authority (STUK)

The objectives of this workshop are to:

- improve understanding in both the research and policy communities on what is at stake in the system of radiological protection
- as scientific knowledge and social values evolve;
- contribute to the development of a more shared view of emerging scientific and societal challenges to radiological protection,
- taking into account existing differences;
- identify research that will better inform judgments on emerging issues;
- be the first step in the identification of elements of a framework that is better suited for the integration of new scientific and
- technological developments and socio-political considerations in radiological protection; and
- identify the most appropriate next steps in this process.
- To achieve the above objectives, the workshop will consist of plenary presentations as well as breakout sessions for moderated
- discussion of specific issues. The following emerging radiation protection issues will be addressed in the workshop:
- non-targeted effects;
- individual sensitivity;
- circulatory diseases.

More information about the workshop, logistic as well registration information can be found on the workshop homepage:

<http://www.nea.fr/html/rp/helsinki08/welcome.html>

The first International Polar Year (IPY) **Workshop on Sustaining Arctic Observing Networks** will take place in Stockholm, Sweden on 12-14 November 2007,

The following key questions will be discussed:

- 1) What Arctic observing sites, systems and networks currently exist?
- 2) What spatial, temporal and disciplinary gaps exist?
- 3) How will gaps be filled and the observation effort sustained?
- 4) How are these activities to be coordinated and integrated?
- 5) How can free, open and timely access to data be achieved?

More details on working sessions on the dedicated website: <http://www.arcticobserving.org/>

Recent Journals, Books, Reports

IUR Reports series

IUR Report n° 4 (2006) Radioecology in a multipollution context - IUR web based questionnaire results, Research, Facilities and Scientific Priorities, ISBN 978-0955499401

IUR Report n° 5 (2006) Radiological Protection of the Environment - IUR web Based questionnaire results, Research, Facilities and Scientific Priorities, ISBN 978-095549418

IUR Report n° 6 (2006) Recommendations for improving predictions of the long term environmental behaviour of ¹⁴C, ³⁶Cl, ⁹⁹Tc and ²³⁷Np ²³⁸U - Findings of the IUR «Radioecology and Waste» Task Force, ISBN 978-0955499425

IUR book

The book "Radioecology: Radioactivity and Ecosystems" edited by E. Van der Stricht and R. Kirchmann (2003), ISBN 2-9600316-0-1, is still available for sale at the preferential rate for IUR members: 60 Euros (including port).

Others books from IUR members

Cesium-137 in the Environment: Radioecology and Approaches to Assessment and Management (2006), NCRP Report No. 154, 382 pages. ISBN-13: 978-0-929600-91-8

Characteristics and behaviour of ¹⁴C, ³⁶Cl, ²³⁹Pu and ⁹⁹c in the biosphere in the context of performance assessments of geological repositories for high-level radioactive wastes. (2006) A. Aguero, D. Perez-Sanchez, C. Trueba, M. Moraleda, eds., Coleccion Documento CIEMAT, Madrid, Spain, 142 pages.

Equidosimetry - Ecological standardization and equidosimetry for radioecology and environmental ecology. (2005) Edited by F. Bréchnignac and G. Desmet, NATO Security through Science Series, Springer, Dordrecht, The Nertherlands, 436 pages.

Chernobyl - Catastrophe and consequences. (2005) Edited by J. Smith and N. Beresford, Springer, Praxis, Berlin, Germany, 310 pages.

Anthropogenic radionuclides in the seas washing Russia. (2005) Savintsev Yu.V., Vakulovsky S.M., Vasiliev A.P., et al. M.: IzdAt, 624 pages.



INVOICE MEMBERSHIP FEE 2007*

Member's Name and first name:.....

Membership type (*student, regular, emeritus...*):.....

Full address:

Email:.....

Amount to be paid (*please, tick as appropriate*):

Membership grade	Rates for 2007	
	US \$	€
Student	24 US \$ <input type="checkbox"/>	20 € <input type="checkbox"/>
Regular	50 US \$ <input type="checkbox"/>	40 € <input type="checkbox"/>
Emeritus	24 US \$ <input type="checkbox"/>	20 € <input type="checkbox"/>
Supporting Org.	> 500 US \$ <input type="checkbox"/>	> 400 € <input type="checkbox"/>

Members are requested to pay their fees as soon as possible.

For any clarification on the methods of payment, please contact: D. Oughton (Treasurer) deborah.oughton@umb.no

Preferred method of payment:

Please charge my credit card: Amount:..... € \$ (delete as appropriate)

Visa Card: Mastercard/Eurocard:

Name of cardholder (PRINT) Expiry date: .. / .. (mm/yy)

Card number:

Signature Date:

Other possible methods of payment: (*fill or delete as appropriate*)

- I will pay directly to my regional branch delegate,(name)
- I enclose a crossed EURO-cheque (please write your Eurocard number at the back! ! !) or international cheque.
Make cheques payable to: "Union Internationale de Radioécologie" or "The International Union of Radioecology"
- I will pay in EUROS by bank or international transfer to Bank: KBC Bank NV(Havenlaan 2, 1090-Brussels, Belgium)
Account number: IBAN BE32 4140 0405 1202, BIC or Swift code: KREDBEBB
- I will pay in US DOLLARS by international transfer to Bank: KBC Bank NV(Havenlaan 2, 1090-Brussels, Belgium)
Account number: IBAN BE63 4140 0405 1808, BIC or Swift code: KREDBEBB

Please cancel my membership

Return this completed form either:

by fax: +33 4 42 19 91 54 or surface mail to : Lydie Emonides, IUR Membership Secretariat, Institut de Radioprotection et de Sûreté Nucléaire, IRSN-DESTQ/Dir, Bât. 229, Centre d'Etudes de Cadarache, 13115 Saint-Paul-lez-Durance cedex, France,
by email: webmaster@iur-uir.org

*Would any member, especially those located in developing countries, encounter difficulty of payment, a rebate can be asked in writing to the General Secretary (request to be sent to the Secretariat: Lydie.emonides@irsn.fr)

Executive committee

President: François Bréchignac (France)
Vice-President: Rudolf Alexakhin (Russia)
General Secretary: Per Strand (Norway)
Treasurer: Deborah Oughton (Norway)

IUR Secretariat

Lydie Emonides
IRSN-DESTQ/Dir
Centre Etudes de Cadarache -Bât 229, BP 3
13115 St-Paul-lez-Durance - France
contact: lydie.emonides@irsn.fr
mailbox: webmaster@iur-uir.org

Membership application

Interested persons, wishing to apply for IUR membership, can submit an application form to the General Secretary at: webmaster@iur-uir.org

On-line application accessible on the IUR web front page at: <http://www.iur-uir.org>

Submissions to the Newsletter

IRSN-DESTQ/Dir
Centre Etudes de Cadarache -Bât 229, BP 3
13115 St-Paul-lez-Durance - France
mailbox: webmaster@iur-uir.org

Board of Council

Rudolf ALEXAKHIN
Russian Institute of Agricultural Radiology and Agroecology
Kievskoe Str., Kaluga Region
249032 Obninsk, Russia
e-mail: alexakhin@riar.obninsk.org

François BRECHIGNAC
Institute for Radioprotection and Nuclear Safety
IRSN/DESTQ-DIR, Centre d'Etudes de Cadarache, Bât 229 - BP 3
13115 St-Paul-lez-Durance, France
e-mail: francois.brechignac@irsn.fr

José Marcus GODOY
Instituto de Radioproteção
Comissão Nacional de Energia Nuclear
P.O. Box. 37750, Bama da Tijuca
Rio de Janeiro RJ CER 22642-970, Brazil
e-mail: jmgodoy@ird.gov.br

Deborah OUGHTON
Norwegian University of Life Sciences
Department of Plant and Environmental Sciences
P.O.BOX 5003, N 1432 Ås, Norway
e-mail : deborah.oughton@umb.no

Steve SHEPPARD
ECO Matters Inc.
Suite 105, W.B. Lewis Business Centre
24 Aberdeen Ave., Pinawa, MB, R0E 1L0, Canada
e-mail: sheppards@ecomatters.com

Per STRAND
Norwegian Radiation Protection Authority
P.O.BOX 55
1332 Østeraas, Norway
e-mail: per.strand@nrpa.no