

ICRP 2013: 2nd International Symposium on Radiological Protection, Abu Dhabi

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Introduction

The European ALARA Network (EAN) participated with two representatives (chairman and secretary) to the ICRP 2nd International Symposium on Radiological Protection. The EAN as a special liaison organisation was also invited together with other organisations to participate in the Main Commission session prior to the symposium as a starting point for the new and improved ICRP scheme for formal relations.

1. Main Commission meeting, liaison organization session, October 20, Abu Dhabi

The ICRP Main Commission session with senior representatives of the liaison organisations was a success. The meeting provided a forum for discussing the work of ICRP in relation to other organisations and will be repeated together with the biennial symposia. The next symposium is planned October 2015 in Seoul. Depending on the work plan of ICRP, meetings between the organisations could be planned in the intervening years. Bilateral and other discussions or interactions on the working level can further complement these meetings when opportunities arise.

The organisations participating to the Main Commission meeting were:

- EAN European ALARA Network
- ENISS European Nuclear Installation Safety Standards
- NERIS European Platform on Emergency and Recovery Preparedness and Response
- HERCA Heads of European Radiological protection Competent Authorities Association
- ILO International Labour Organisation
- IRPA International Radiation Protection Association
- NEA CRPPH Committee on Radiation Protection and Public Health
- WHO World Health Organisation

- WNA World Nuclear Association

Representatives of the European Commission and International Atomic Energy Agency, also invited, send their apologies.

Each of the organization presented their activities and outlined topics of mutual interest and proposals for collaborative efforts.

The presentation of the European ALARA Network highlighted the position of EAN in the radiation protection system i.e. as a promoter of the practical application of optimisation. It elaborated on the way experiences are gathered, processed and disseminated by our network through workshops, questionnaires, the web site, etc. The topics of further interest identified by our network were industrial radiography, optimisation in the medical field, optimising public exposure, existing exposure and post accidental exposure situations.

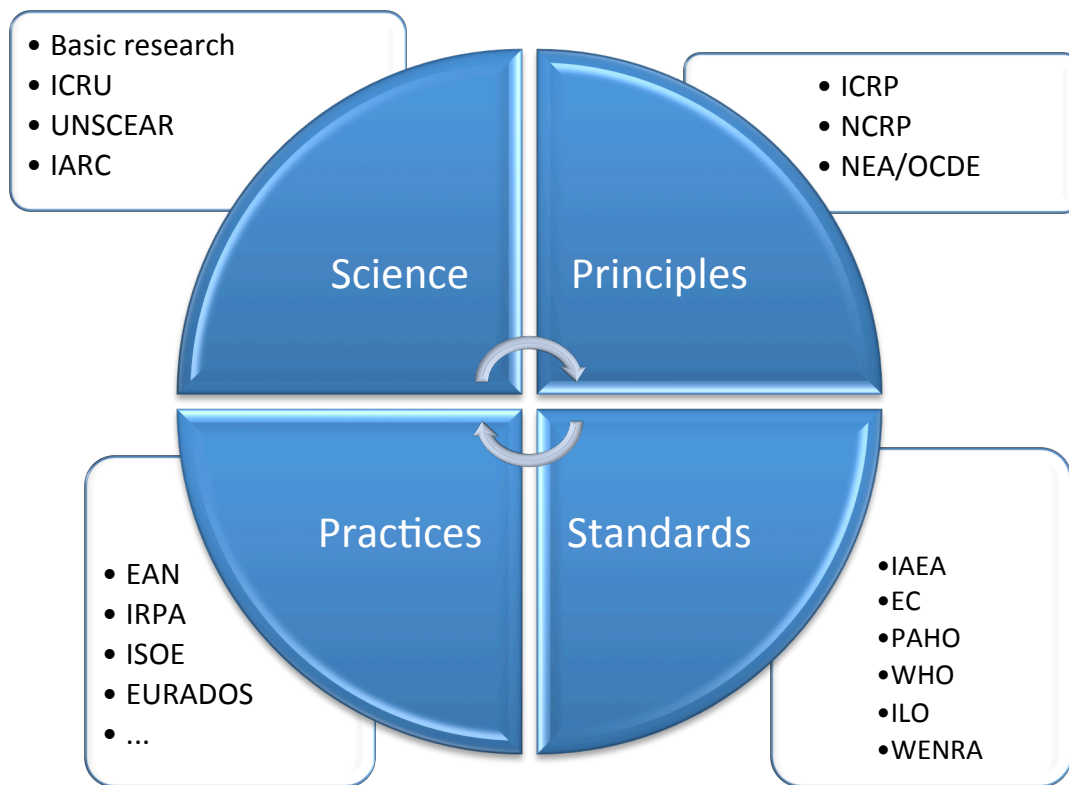


Figure 1 – The position of the European ALARA Network with respect to the four pillars of radiation protection.

ICRP took note of the presentations and proposals of the different liaison organisations and will examine possible ways of collaboration on specific topics. During the session a clear interest was shown by the main commission in the topic concerning optimisation in industrial radiography.

In general another theme closely linked with the aspect of optimisation is the tolerability of risk, a subject that is being explored by a task group of Committee 4. We as a network, looking at the optimisation of exposures, are also interested in the further discussions within this task group.

During the discussions with the other organisations it also became clear that there is a need to examine the mechanism to go from ICRP recommendations to practical implementation of the radiation protection system. The mechanism should also examine implementation issues prior to making the recommendations. A proposal to jointly develop a broad but brief explanation of the entire system of protection and the rationale behind it was discussed and could be a basis for further collaboration of the liaison organisations with the ICRP.

2. The ICRP symposium, October 22-24, 2013, Abu Dhabi

The symposium was opened by the Chair of ICRP, Dr Claire Cousins, who explained that it formed part of the strategic plan of ICRP: to collaborate more closely with persons involved in radiation protection; to develop openness; and to continue the evolution of ICRP.

The opening session was devoted to the work programme of the ICRP Main Commission and Committees 1 to 5. Following this, the remainder of the workshop consisted of five sessions, each on a topic relevant to the current ICRP work programme. Given below is just a flavour of these sessions.

“Tissue reactions: The road from science to protection”

Convincing evidence is now emerging about a range of non-cancer effects, such as circulatory disease, for which dose thresholds and risk factors are being established. There is not sufficient space in this short article to describe the detailed radiobiology and epidemiology presented. However, it is clear that this work will ultimately translate into a reconsideration of the overall risks of radiation exposure.

Specific attention was given to the lens of the eye, due to the significant reduction in the dose limit for workers. This has been driven by the recognition that cataract formation is a stochastic effect as well as a tissue reaction, and also direct evidence of eye damage in exposed workers, especially in the medical sector. There are, however, significant practical implications associated with the lower dose limit, as demonstrated by the review undertaken by IRPA.

“Advances in recovery preparedness and response following Fukushima”

Many lessons have been learned following the accident, not least the importance of ensuring that communications with the public are timely, transparent, coherent and understandable. It also needs to be recognised that the priorities assigned by the public may differ to those set by the authorities (with protection of children being a prime example). One outcome of this is the formation of an ICRP Task Group to review the terminology and definitions used in radiation protection, and produce an on-line glossary.

Monitoring programmes have focussed on assessing the actual exposure of individuals, through personal dosimeters and duplicate diet analyses. The results indicate that internal radiation exposures are generally very low. External gamma exposure is the main exposure pathway, and the dose distributions include a small percentage of individuals receiving exposures much higher than the average; remediation strategies need to take this into account.

There is a very substantial off-site remediation programme underway, which is producing practical information on the effectiveness of different environmental decontamination techniques, as well as very large volumes of waste that need to be managed. What remains unclear, however, is how much this programme can go towards meeting the needs and wishes of the affected populations.

“NORM issues in the real world”

This session highlighted the on-going confusion surrounding the application of the ICRP system of exposure situations to NORM industries. There probably is no perfect “fit” that covers all circumstances, and the important message was that the choice of exposure situation (i.e. planned or existing) does not automatically imply a specific means of control - this is a separate (and more important) issue. Optimisation should be applied in all exposure situations, with dose constraints or reference levels for NORM being set at the lower end of the 1 to 20 mSv/y range. A new ICRP Task Group on NORM has been established, to provide a report that will aim to clarify all these issues.

“What do we need from ICRP in medicine?”

The proliferation of diagnostic and therapeutic medical techniques involving radiation exposure presents a significant challenge to the radiation protection community. The magnitude of the doses produced by these techniques is sufficient to warrant epidemiological studies into the incidence of radiation-related effects. However, such studies need to be conducted with special care, to avoid bias from effects such as reverse causation, which occur where the study population consists of persons that have already been identified as requiring medical attention.

Ultimately, the main question is how to bring about the optimisation of medical exposures. Recent years have shown a significant world-wide increase in population doses, but there is now some evidence that this trend may be being reversed in certain countries. Common issues raised during the session were the lack of Medical Physicists, and the need to improve general RP awareness in the medical sector.

“The ICRP approach to environmental radiation protection: issues and applications”

The approach developed by Committee 5, based on a set of 12 Reference Animals and Plants (RAPs), was presented and discussed. For each RAP, the aim has been to establish dose rate thresholds below which no significant adverse effects should occur. These vary greatly across different species, and it was noted that laboratory studies do not always agree with field studies.

Dosimetry has so far been very simplistic, and efforts have been made to construct much more sophisticated voxel models for individual RAPs, mirroring the approach taken for human exposures. It was, however, queried whether the significant amount of work required to achieve this level of sophistication was warranted, given the overall uncertainties in assessing the impact on non-human species.

Conclusion

The participation of the European ALARA Network to the liaison organisation session and the symposium gave us the opportunity to interact with ICRP and other organisations active in the field of radiation protection. The presence of EAN reaffirmed its role in the dissemination of the practical application of the optimisation principle and we look forward to collaborations with other organisations and the ICRP in that field.