

European ALARA Network - Experience with networking to support optimisation of protection in practice

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(supported by the Bureau and the Steering Group of the EAN)

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Optimisation of Radiation Protection

ICRP 103 The 2007 Recommendations

ICRP 101 The Optimisation of Radiological Protection

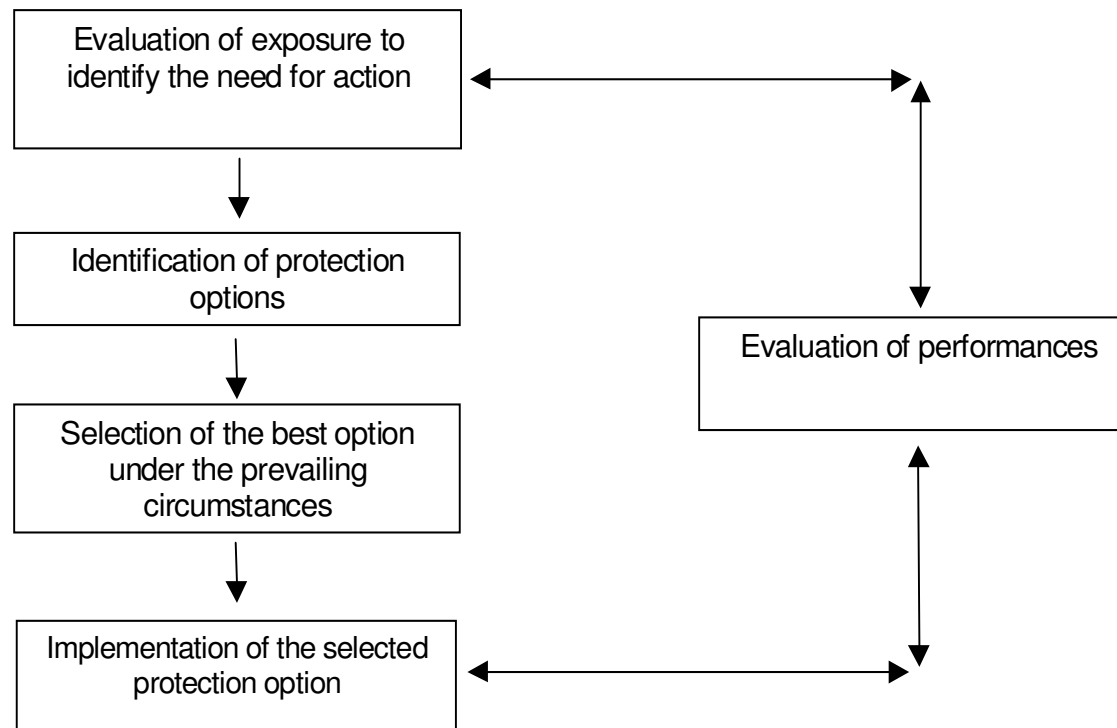
Optimisation of radiation protection is a sources-related process to keep:

- ▶ the magnitude of individual doses
- ▶ the number of people exposed
- ▶ the likelihood of potential exposure

as low as reasonably achievable (ALARA), below appropriate dose constraints (economic and societal factors being taken into account).

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The practical implementation (ongoing process)



Schematic View of the Optimisation Process (ICRP 101)

The process of optimisation below constraints should be applied whatever the exposure situation is: planned, emergency and existing.

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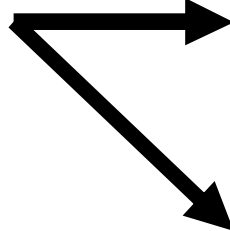
Development since 1973

theoretical approaches /
Cost-benefit analysis



**Practical
ALARA Tools**

New Systems
New Studies



ISOE

Internat. System on Occupational Exposure
NEA OECD/ IAEA, 1991

ESOREX (EU, 1997)

European Study of Occupational Radiation Exposure

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Development since 1973

End reports of some EU-Projects summarized in:

“ALARA - From theory towards practice“

- ▶ 4 Seminars on “Optimisation“ (- 1993)
- ▶ EU-Project “ALARA in Installations“ (1992 - 1995)
- ▶ European ALARA Network (supported by EC since 1996)
- ▶ EAN – self-sustainable network since 2005

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EAN - Set up in 1996 by the European Commission

in order to:

- ▶ PROMOTE the application of the ALARA principle within the non nuclear industry, the research and medical sectors, and the nuclear cycle,
- ▶ PROVIDE a means for feedback experience and the EXCHANGE and DISSEMINATION of good radiation protection practices;
- ▶ PROVIDE the European Commission and other stakeholders with RECOMMENDATIONS concerning radioprotection issues (research projects, regulations, databases, workshops...).

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Development of the Objectives (Terms & Conditions)

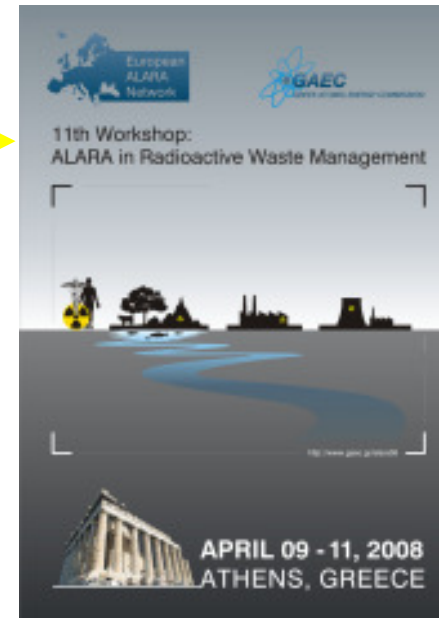
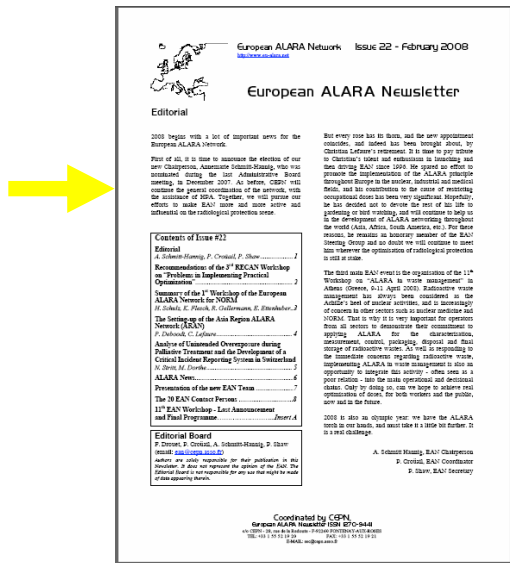
- Maintenance, enhancement and further development of the competence in radiation protection, with special emphasis on the implementation of the ALARA principle for occupational, medical and public exposures during routine operations and in emergency situations;
- Harmonisation of radiation protection on the level of regulatory requirements as well as on the operational level in European countries;
- Integration of scientific and technical expertise available in European Countries and effective cooperation of experts in optimisation;
- Inclusion of all radiation applications in industry, research and medicine, as well as in the area of NORM;
- Treatment of special issues relevant to all sectors, as well as themes specific to one or more sector(s).

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1996 financial support by EU Framework Programme on research
CEPN / NRPB = Network Coordinators

Meeting of Experts interested in the ALARA Principle

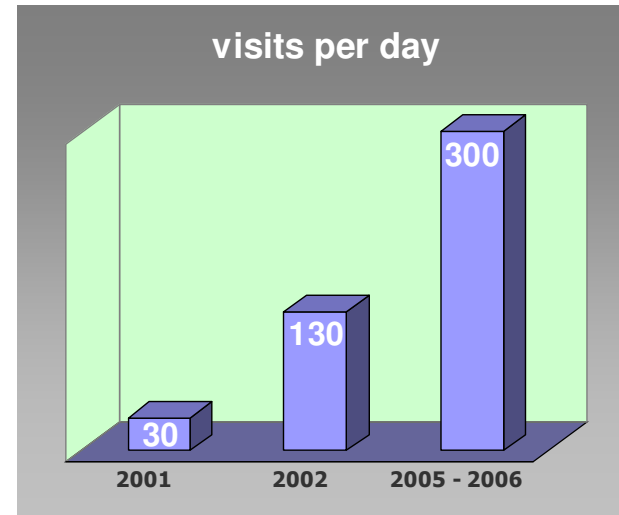
Achievements of Networking:



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ALARA Newsletter / EAN Website

- 25 Issues
- Website















<http://www.eu-alara.net/>

- European Surveys ...

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Development of the EAN activities - ALARA Workshops:

ALARA and decommissioning	Saclay		1997
Good radiation practices in industry and research	Oxford		1998
Managing internal exposure	Munich		1999
Management of occupational radiological and non-radiological risks	Antwerpen		2000
Industrial radiography, improvements in radiation protection	Rome		2001
Occupational exposure optimisation in the medical and radio-pharmaceutical sectors ..	Madrid		2002
Decommissioning and site remediation	Arnhem		2003
Occupational radiological protection control through inspection and self-assessment ..	Uppsala		2004
Occupational exposure to natural radiation	Augsburg		2005
Experience and new developments in implementing ALARA in occupational, public and patient exposures	Prague		2006
ALARA and waste management	Athens		2008
ALARA in Safety and Security of Radiation Sources	Vienna		2009

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Common theme recommendations from the EAN workshops

- ▶ To improve safety culture / radiation protection / ALARA culture
- ▶ To harmonise and develop good training standards
- ▶ To develop internal exposure management
- ▶ To involve workers in their radiological risk management
- ▶ To set up adequate systems for feedback from incidents and accidents

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EAN subnets / working groups

2002 **EASN** - European ALARA Sub-Network on Research Reactors

2003 European ALARA Network on **NDT**

2005 **ERPAN** - European Radioprotection Authorities Network

2007 European **ALARA Network for Naturally Occuring Radioactive Material**

<http://www.ean-norm.net> (Coordination: IAF Radioökologie GmbH, Dresden)

2009 **EMAN** – Medical ALARA Network

- ◆ Working Group **ALARA Training** (not active in the moment)
- ◆ Working Group **ALARA Tools** (starting 2010)
- ◆ Working Group on **ALARA Culture** (2009)

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European Medical ALARA Network (EMAN)

7 Work Packages (WPs) will cover specific tasks leading to the common objective: the establishment of the European Medical ALARA Network.

WP0 chaired by the coordinator of the project is responsible for the management and general coordination of the project.

WP1, WP2 and WP3 will be devoted to the following technical topics:

WP 1 Establishment of a Working Group (WG1) on optimisation of patient and occupational exposures in CT-procedures,

WP 2 Establishment of a Working Group (WG2) on optimization of patient and occupational exposure in interventional radiology,

WP 3 Establishment of a Working Group (WG3) on radiological safety for patients and personnel in activities using X-ray equipment outside the X-ray departments,

WP 4 will be in charge of the establishment and the continuous up-date of a website, which should be the main channel to exchange information between partners and stakeholders and to give visibility to the new network.

WP 5 will be in charge of the elaboration of a methodology of the establishment of a sustainable EMAN.

WP 6 will be responsible for the organisation of a European workshop on EMAN results.

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European ALARA Network for NORM – EAN NORMnet

What are the issues at stake in the NORM sector related to ALARA ?

- 1. Identification of exposure situations**
- 2. Realistic dose assessment of NORM industries: assessment of radiation doses to workers (graded approach) and to members of the public due to discharges from NORM industries: progress made, issues to be discussed**
- 3. Implementation of the ALARA principle: common approaches/experience in different NORM industries ?**

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European ALARA Network for NORM – EAN NORMnet

Regulatory requirements for NORM on the national and European level

- 1. Provisions for NORM in the new BSS: is this what we need? strengths and weaknesses?**
- 2. What is the position of the group with regard to requirements for norm industries in the “European Commission Services considerations with regard to natural radiation sources in BSS Directive”**
- 3. Experience with implementing NORM regulations: feedback and practical radiation protection issues**

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European ALARA Network for NORM – EAN NORMnet

Need for a European ALARA NORM Network

1. What are the advantages of building a group and exchanging experience?
2. How can this be realized?
3. How to achieve self-sustainability?

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EAN Working Group on ALARA Culture

Objectives of the WG – What are we aiming at ?

The objective of the WG is to maintain and further develop the high level of radiation protection by promoting the ALARA culture in all fields of application, implementing the ALARA principle into practice, and analysing feedback from implementing ALARA in various sectors.

Rationale for developing an ALARA culture – why now?

Loss of competence, EAN workshop recommendations, IRPA

Elements of an ALARA culture – How are we going to develop the EAN position ?

what has already been discussed within the EAN with respect to ALARA culture in the last years (EAN-5 and EAN-10), how to proceed, what is the best strategy ?
The EAN position will be developed along the lines of the EAN Workshop recommendations on ALARA Culture and on the basis of the discussions of the WG ALARA Culture, the EAN Steering Committee, the subnets (ERPAN, EMAN and EAN-NORMnet) and the input of the EAN cooperation partners (EFNDT, EFRS, ESR and EFOMP).

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EAN Administrative Board 2009

Chairperson	Schmitt-Hannig , Annemarie	BfS
Secretary	Shaw , Peter	HPA
Treasurer	Drouet , Francois	CEPN
Coordinator	Crouail , Pascal	CEPN
Members	Steering Group members of the organisations financing the EAN Coordination	

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Expansion of EAN Membership

Since 1996 the number of countries represented in the EAN Steering Group is increasing:

Belgium		Ireland		Portugal	
Denmark		Island		Slovenia	
Germany		Italy		Spain	
Finland		Croatia		Sweden	
France		Norway		Switzerland	
Greece		Netherlands		Czech Republic	
Great Britain		Austria			

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Expansion of EAN Membership

Since 2001 the following institutions participate in the network activities:

1. Representatives of national radiation protection societies, the European Federation for Non-Destructive Testing (EFNDT), the European Federation of Radiographer Societies (EFRS), the European Society of Radiology (ESR), the European Federation of Organisations for Medical Physics (EFOMP);
2. Manufacturers of equipment and of radiation sources;
3. Representatives of international organisations, such as IAEA, ILO, NEA/OECD as well as experts of the European Commission, representatives of training centers, of trade unions, representatives of the NORM und NDT Industry.

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Establishing formal cooperation with other European organisations and networks

- **ESR, EFOMP, EFRS** (Medicine)
- **EFNDT** (Industry)
- **EURADOS** European Radiation Dosimetry Group
- **ENETRAP** European Network on Education and Training in Radiological Protection
- **EUTERP** European Platform on Training and Education in Radiation Protection

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The EAN – a success story

Implications of the recommendations of the ALARA Workshops:

- New European projects:
 - **SMOPIE** Strategies and Methods for Optimisation for Protection against Internal Exposures of Workers
 - **EURAIDE** European Accident and Incident Data Exchange
- Influence on formulations of the new ICRP Recommendations
- new EAN subnets or new ALARA Networks

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The EAN – a success story

National Implications:

- Modifications of national regulatory requirements and/or radiation protection regulations
- Organisation of special working groups between radiation protection authorities and stakeholders
- Development of special monitoring equipment (for example “Sentinelle”, EDF)
- Establishment of national data bases on radiation incidents and accidents including unusual occurrences (z.B. RELIR)

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The EAN – a success story

Acceptance and recognition in international IAEA conferences, workshops and technical meetings:

- **Geneva 2002 Conference on Occupational Radiation Protection**
- Spin-off: **IAEA/ILO International Action Plan on Occupational Exposure**
(supported by EAN advice and cooperation in the IAEA/ILO Steering Group)
- **Rabat 2003 Conference on National Infrastructures for Radiation Safety**
- Spin-off: **Establishment of new ALARA Networks in**
 - Europe and Central Asia (RECANA)
 - Asia and Pacific (ARAN)(on the basis of the EAN structure and organisation)

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The EAN – a success story

Reasons for the success:

- Clear vision and common objectives
- Personal connections, relationships and communication abilities
- Enthusiasm
- Flexibility
- Collective efficiency

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Necessary Improvements

Problem

Limited contact to workers or representatives of:

- Industry
- Trade unions
- Small and medium enterprises

Language problems

Possible solutions

- ✓ enhanced use of electronic means (email, internet, etc.)
- ✓ participation in EAN discussion forum
- ✓ ALARA training events

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Necessary Improvements

Broadening the range of EAN

- Involve new active stakeholders (e.g. medical doctors)
- Involve representatives of societal groups (e.g. Montbéliard)
- Cooperate with other international networks (e.g. ARAN)

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Conclusions

- Early ALARA activities of a small group of enthusiastic radiation protection experts lead to the establishment of the European ALARA Network
- Development/Elaboration of new initiatives and recommendations in the last 13 years
- ALARA Concept = integral part of routine radiation protection practice

New challenges:

- Practical implementation of the new ICRP Recommendations
- ALARA approach to radiation protection culture and practical implementation of RP culture in all sectors
- Safety and security
- Stakeholder involvement

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Thank you for your attention!