

# A Collective Perspective on Occupational Radiation Protection

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## The NEA

### Our Mission

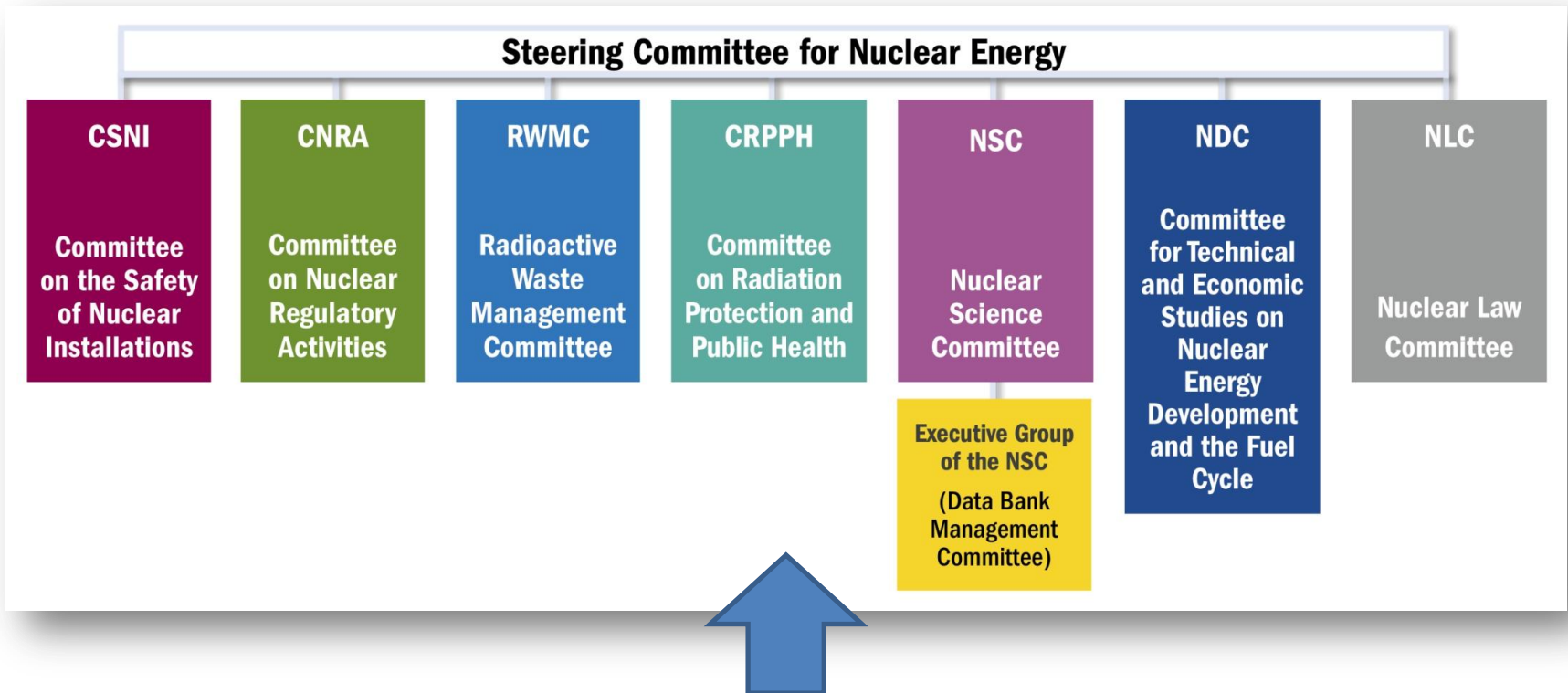
- To assist its member countries in maintaining and further developing, through **international co-operation, the scientific, technological and legal bases** required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes.
- To provide authoritative assessments and to forge **common understandings** on key issues, as **input to government decisions on nuclear energy policy**, and to broader OECD policy analyses in areas such as energy and sustainable development.

## NEA Member Countries



The NEA's current membership consists of 31 countries in Europe, North America and the Asia-Pacific region. Together they account for approximately 85% of the world's installed nuclear capacity.

## NEA Committees



- Participants: Policy makers, regulators representatives of research and developments institutions and relevant international organisations
- Main focus areas: Emerging radiological protection issues, exchange of experience

## Committee on Radiation Protection and Public Health (CRPPH)

Expert Group on Radiological Protection Aspects of the Fukushima Accident (EGRPF)

Expert Group on the Implications of Recommendations (EGIR)

Expert Group on Radiological Protection Science (EGRPS)

Expert Group on Occupational Exposure (EGOE)

Working Party on Nuclear Emergency Matters (WPNEM)

**OECD/NEA joint project in the area of radiological protection:**

- Information System on Occupational Exposure (ISOE)

## Specific work of the CRPPH

- Addressing and learning from the issues arising from the Fukushima Daiichi accident, particularly decontamination, stakeholder involvement, and living in contaminated area aspects;
- The evolution and implementation of the system of radiological protection, providing input to the ICRP on draft recommendations, and to the IAEA on draft versions of Safety Requirements documents;
- The state-of-the-art in radiological protection science and its implications for radiological protection policy, regulation and implementation. In particular the CRPPH will study the variability of an individual's dose with age, gender and body-shape;
- Science and values aspects of radiological protection decision making, and of stakeholder involvement aspects and approaches; and
- Emergency and recovery management planning and implementation issues and experience.

## CRPPH Expert Group on Occupational Exposure

- EGOE: seven subsequent years (2006; Jan 2007-May 2013)
- Close co-operation with the ISOE (utility involvement)
- App. 40 experts from the NEA countries
- Policy and strategic areas of ORP with a focus on the nuclear power sector

### 3 Case Studies

**2010:** Occupational radiation protection principles and criteria for designing new nuclear power plants

**2011:** Dose constraints in occupational radiation protection

**2013:** Information and Regulatory Issues for the Management of International Outside Workers and Integration of Risk Management at Nuclear Power Plants



## Collective message

### **ORP Principles and Criteria for Designing new NPPs**

- There is a need to consider full life-cycle at the design stage (e.g. through available feedback from maintenance and dismantling) and to organize training and knowledge management through extended life-cycle (2-3 generations of workers).
- Networking is an important element to enable information collection and exchange on ORP during design and over full life-cycle.

### **Dose Constraints in ORP: Regulations and Practices**

- Implementation of dose constraints depends on co-operation between registrant, licensee and regulator
- Use of dose constraints limits the inequity of exposure vs. unequal individual exposure may sometimes be justified
- Radiation exposure is not always the only or predominant workplace risk with individual approaches, often not only a single value, but a set of numerical criteria (e.g. individual dose, collective doses, ambient dose rate, etc. embedded in a decision flow chart).



## Collective message

### **Management of Outside Workers and Integrated Risk Management**

- International outside workers work in a heterogenic legal environment and have to cope with conflicts from regulatory inconsistencies between the different countries involved.
- Regulations and monitoring practices often differ between countries, although there exist generally acknowledged ICRP recommendations.
- The simultaneous consideration of multiple contributors to risk to workers and the public is a complex undertaking.
- Development of flowcharts and/or procedures which address all of the relevant factors and quantify all of the elements of balanced decision-making is more complex (potentially impractical for some facilities and situations).
- Integrated risk management will always remain in development with scientific understanding of risks and their interactions improve with time
- Techniques for work performance evolve with time and technology
- Society's perspectives on risk are dynamic.

## Information System on Occupational Exposure

### **Promoted and sponsored by the NEA and the IAEA since 1992**

- Forum for RP experts from utilities and regulatory authorities world-wide to share amongst participants dose reduction information & coordinate projects to improve optimisation of worker radiological protection at NPPs
- Expert Group Report: Occupational Radiation Protection in Severe Accident Management (collective view of the ISOE participating utilities and regulatory authorities)
- Focuses on
  - RP management and organization
  - Training and exercises related to severe accident management
  - Facility configuration and readiness
  - Worker / responder protection
  - Monitoring and managing radioactive releases and contamination
  - Key lessons learned especially from the TMI, Chernobyl and Fukushima Daiichi accidents



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