



NEA International Peer Reviews for Radioactive Waste Management

Background and Process

Rebecca Tadesse

**Head of Division, Radioactive Waste
Management & Decommissioning, NEA**

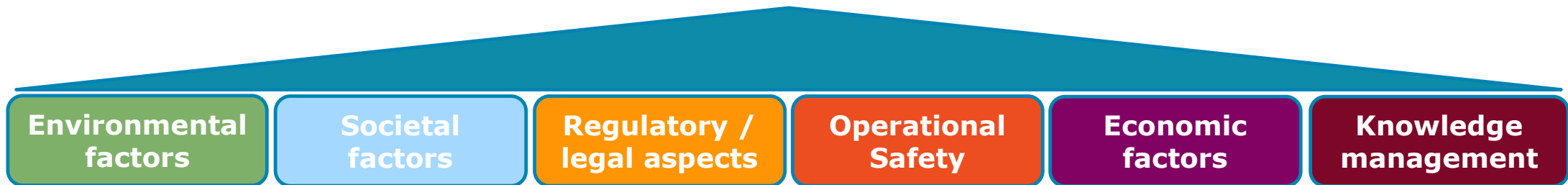
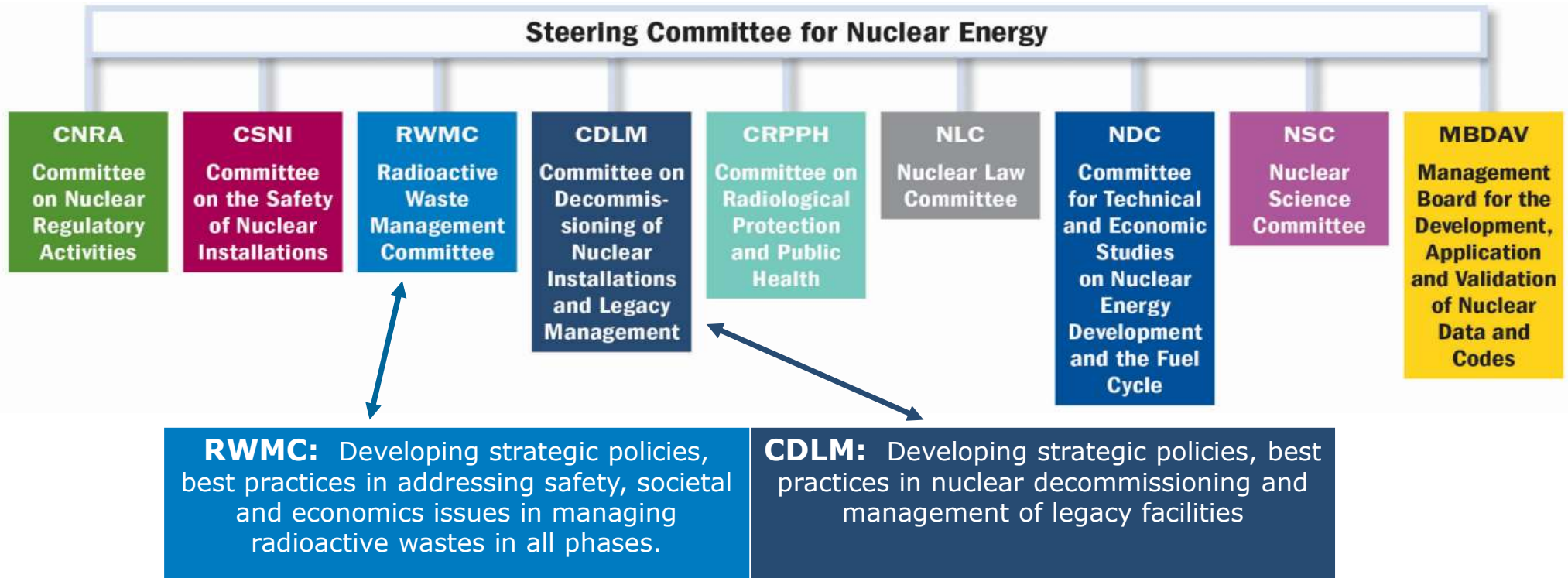


NEA member countries



The NEA's current membership consists of 34 countries in Europe, North America and the Asia-Pacific region. Together they account for approximately 82% of the world's installed nuclear capacity.

NEA Standing Technical Committees



Radioactive Waste Management Committee (RWMC)

The RWMC is an international committee supporting members in the development of **safe and economically efficient management** of all types of radioactive waste (including spent fuel).

RWMC has:

- Representatives from regulatory authorities, policy-making bodies, RWM implementers, research institutes and other key stakeholders.
- **125** members, from **30+** countries and the **European Commission (EC)**.
- Observers: **IAEA**

General aspects of an NEA coordinated peer review

Radioactive Waste Management
Gestion des déchets radioactifs

ISBN 92-64-01077-7

International Peer Reviews for Radioactive Waste Management

General Information and Guidelines

**Reuves internationales par des pairs
pour la gestion des déchets radioactifs**

Informations générales et lignes directrices

© OECD 2005
NEA No. 6082

NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

International Peer Reviews are organised in accordance with the published 2005 NEA guidelines on international peer reviews for radioactive waste management.

General aspects of an NEA coordinated peer review

- An NEA coordinated peer review can be described as the systematic examination and assessment of a national waste management programme or a specific aspect of it, with the ultimate goal to help the requesting country to adopt best practices, comply with established principles and, in some cases, improve policy.
- The examination is conducted on a non-adversarial basis. It relies on mutual trust among the NEA Secretariat and the country/organisation requesting the review, as well on shared international confidence in the process.
- This trust has been built over many years through the co-operation work taking place under the aegis of the RWMC and through the refinement of the peer review procedure over many earlier peer reviews.

General aspects of an NEA coordinated peer review (continued)

- NEA coordinated peer reviews are not meant to formally approve or disapprove a national programme. Rather they are meant to help the national programme improve and to facilitate the self-assessment of the reviewee and/or the assessment by the national reviewers.
- Care is also taken to not interfere unduly with national decision-making processes, e.g. for licensing a facility.

Co-operational aspects of NEA Peer Reviews

- With these elements in place, and through the possible reciprocity of the evaluation process, peer review tends to create a system of mutual accountability among NEA member organisations.
- Peer review as a working method is closely associated with the OECD, where it is facilitated by the homogeneous membership and the high degree of shared trust amongst the member countries and in the Secretariat.
- In the OECD, peer review is seen as an instrument for both co-operation and change. In particular, while there is value in the review report, the view is also that much benefit is received by the member country from the process of undergoing a peer review itself.

Identification of the International Review Team (IRT)

- An International Review Team (IRT) with broad international experience was assembled independently by the OECD/NEA. It consisted of seven external experts from the RWMC, a hired technical writer, and two NEA staff, covering the following areas of competence:
- Expert knowledge in siting and design of deep geological repositories in crystalline and sedimentary rock formations;
- Expert knowledge for conducting safety assessment of geological repositories for HLW and TRU waste.

NEA Peer Reviews in the 1990's

Year	Country	Name
1992	Sweden	SKI's Project 90
1993	Netherlands	Research programme for Onshore Geological Disposal of Radioactive Waste in the Netherlands (OPLA-1a)
1995	Sweden	SKI's SITE-94 Project
1995	Canada	AECL - Environment Impact Statement of the Disposal of Canada's Nuclear Fuel Waste.
1996	USA	Performance Assessment for Compliance Certification of the US Waste Isolation Pilot Plant (WIPP)
1999	UK	NIREX Methodology for Scenario and Conceptual Model Development – An International Peer Review
1999	Japan	JNC H-12 Project to establish the technical basis of HLW disposal in Japan
1999-2000	Sweden	SKB's Safety Report 97: Post-closure Safety of a Deep Repository for Nuclear Spent Fuel in Sweden

NEA Peer Reviews in the 2000's

Year	Country	Name
2000	USA	Yucca Mountain Project's Total System Performance Assessment for the Site Recommendation (TSPA-SR)
2002	Belgium	SAFIR 2: Belgian R&D Programme on the Deep Disposal of High-level and Long-lived Radioactive Waste
2003	France	The French R&D Programme on Deep Geological Disposal of Radioactive Waste - "Dossier 2001 Argile"
2004	Switzerland	Safety of Disposal of Spent Fuel, HLW and Long-lived ILW in Switzerland. Post-closure radiological safety assessment for disposal in the Opalinus Clay of the Zürcher Weinland (Project Entsorgungsnachweis)
2006	France	Safety of Geological Disposal of High-level and Long-lived Radioactive Waste in France - "Dossier 2005 Argile"

NEA Peer Reviews in the 2000's (continued)

Year	Country	Name
2011	Sweden	The Post-closure Radiological Safety Case for a Spent Fuel Repository in Sweden
2012	Belgium	The Long-term Radiological Safety of a Surface Disposal Facility for Low-level Waste in Belgium
2016	Japan	Geological Aspects of the Siting Process for a HLW deep underground Repository

IRT Impartiality

- To assure high standards of integrity and to avoid conflict of interest, the selected review team experts was not have been involved with the Japanese radioactive waste management programme, including the Japanese government or any of its subsidiaries / affiliated bodies, in the last five years.
- Statements of impartiality were attached in the review report.
- The IRT agreed to the ToR via written agreement.
- Mr Gérald Ouzounian served as the report's technical writer.

The International Review Team

Reviewer	Organization	Reviewer	Organization
Mr. Philippe LALIEUX	Safety Case Strategy (IMPLEMENTER) Ondraf / Niras, Belgium	Ms. Mihaela ION	Safety Assessment (IMPLEMENTER) NWMO, Canada
Mr. Allan HEDIN	Post Closure Safety Assessment (IMPLEMENTER) SKB, Sweden	Mr. Jussi HEINONEN	STUK, Finland (REGULATOR) & IRT Chair
Mr. Jean-Michel HOORELBEKE	Safety Case Strategy (IMPLEMENTER) Andra, France	Mr. Jeheong BANG	KINS, Korea (TSO)
Mr. Jens MIBUS	BFE/BUND, Germany (REGULATOR)	Ms. Morgan PACKER	NEA Secretariat
Ms. Rebecca TADESSE	NEA Secretariat	Mr. Gerald Ouzounian	Technical Writer

Members of the IRT and NEA Secretariat



Jussi Heinonen



Je-Heon Bang



Allan Hedin



**Jean-Michel
Hoorelbeke**



Mihaela Ion



Philippe Lalieux



Jens Mibus



Rebecca Tadesse



Morgan Packer



Gérald Ouzounian

ToRs: Objectives of the NUMO Pre-siting, SDM-based Safety Case Report

- The objective of this peer review was to provide an independent review of the English version of the “NUMO Pre-siting, SDM-based Safety Case Report”.
- The review will assess the maturity and readiness of this generic safety case, developed at a pre-siting stage, to confirm the technical feasibility of deep geological disposal in Japan and to develop a framing structure applicable to site-selection;
- The review will check that the report reflects the latest international technical knowledge and R&D achievements, built around the concept of a safety case, as established by OECD/NEA and IAEA;

ToRs: Objectives

The review should determine sufficiency and credibility of the following 7 components of the report:

- The safety strategy at this pre-selection stage and the approach chosen to prepare to initiate site-specific work;
- The assessment of geological environments considered to be representative of those that would result from the siting programme and the proposed methodology for site characterisation at the beginning of the siting process, focusing on knowledge integration within SDMs;
- The repository design approach, tailoring layout to potential host rocks, and the assessment of the practicality of repository construction, operation and closure.

ToRs: Objectives

- The operational and post-closure safety assessments for repositories tailored to the host rocks described;
- The implementation of management tools to facilitate integration of the siting, design and safety assessment teams and provide the iterative feedback required to assure technical quality;
- The fundamental feasibility of geological disposal in Japan within geological environments similar to the type of environments assessed;
- The critical synthesis of the safety case strengths and weaknesses as the basis for developing an R&D plan for the improvement of the credibility of the safety assessment and practicality of implementation of the geological disposal programme.



Thank you for your attention

Please contact Rebecca.Tadesse@oecd-nea.org and Morgan.Packer@oecd-nea.org if you have any questions or comments.