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## Sixth International Conference on Geological Repositories (ICGR)

*Advancing Geological Repositories from Concept to Operation*

*DRAFT CONCEPT*

07-11 June 2021

Venue: Sirkus Hall, Paasitorni  
Helsinki, Finland

The NEA and the Ministry of Economic Affairs and Employment of Finland are co-organising an International Conference on Geological Repositories (ICGR) – Advancing Geological Repositories from Concept to Operation – hosted by FinNuclear Association and with the participation of International Atomic Energy Agency (IAEA), European Commission (EC) and International Association for Environmentally Safe Disposal of Radioactive Materials (EDRAM), and other contributors.

### Background

Worldwide consensus exists within the international community that geological repositories provide the necessary long-term safety and security to isolate long-lived waste from the human environment over extended timescales. It is also feasible to construct these repositories using current technologies. However, providing the technical merits and safety of repositories, challenges remain in many countries, including building and maintaining public confidence, availability of skilled staff as well as transfer of information and expertise. The involvement of the younger generation is also often challenging, but crucial for the sustainable development of geological disposal.

Building upon the success of previous conferences held in Denver (1999), Stockholm (2003), Berne (2007), Toronto (2012) and Paris (2016), the 6<sup>th</sup> ICGR brings together high-level decision makers from responsible government ministries, regulatory bodies, waste management organisations, research institutes and local stakeholders, as well as young professionals and students to review current perspectives of geological repository development. The 6<sup>th</sup> ICGR on advancing geological repositories from concept to operation is designed to show the significant progress in developing geological repositories in the last two decades by:

- Promoting the sharing of information and experience;
- Discussing various best practices in demonstrating technical reliability;
- Sharing approaches in building human capacity and building stakeholders' confidence in the safe construction and operation of long-term geological repositories.

## Objectives

- To take stock of progress since 2016 in developing and implementing geological repositories for long-lived radioactive waste, and to advance mutual learning through the international forum for the exchange of perspectives and experiences.
- To examine the latest issues and challenges encountered by various stakeholders in different developmental stages by sharing experiences among countries developing geological repositories.
- To enhance international co-operation for transforming research results into practical and reliable technologies for the long-term implementation of disposal facilities.
- To identify opportunities to strengthen co-operation for building and maintaining confidence in the geological repository life cycle.
- To improve involvement of the younger generation in the development and research of geological disposal.

## Programme Overview

### *Monday, 07 June 2021*

Registration and badge pick-up

Ice breaker activities for the younger generation

Tentative reception/dinner

### *Tuesday, 08 June 2021*

Registration and badge pick-up

### *Opening Session*

Keynote addresses to open the Conference.

### *Session 1: Present Status of national geological disposal projects*

#### **Session 1A: Status of national geological repository projects**

This session invites speakers from countries that are in different phases of development to give an overview of their current situation and of progress

achieved since the last ICGR in 2016, showcasing countries at different development stages, covering various processes from siting to licensing. Idea is to start with “successful stories” from the point of view of sustainability. Participants will discuss challenges of countries towards operation including decision-making process and challenges of countries in concept phase.

### **Younger Generation Session: Group discussion**

This session invites the younger generation to discuss challenges in the development of geological repositories, needs for support in education, research and career development for the younger generation and innovative methods to engage with and attract the younger generation. This session will introduce NEA, IAEA and EC activities to support education and career development in nuclear field.

In this session, university students (Bachelor, Master and PhD students) and young professionals will be separated into 3-5 groups. There will be 3-5 facilitators (young professionals) for leading discussions of 3 topics. Each question will be discussed in 20 – 25 minutes. Proposed topics include:

- (1) Topic 1: Define innovation. What is being done or could be done to make it a reality (in this industry)?
- (2) Topic 2: What do you believe the obstacles in this field are? What are some solutions? How should the intergeneration issue be addressed?
- (3) Topic 3: What type of practical knowledge would you like to have imparted upon entering the field? Useful information or techniques?

Target audiences include university students and young professionals with 0-5 years’ work experience or under 30 years old from various countries. High school students in Finland could be invited which will be decided by the Programme Committee. Participants will be nominated by national and international organisations. Interested university students and young professionals can register themselves on the webpage of the 6<sup>th</sup> ICGR.

### **Session 1B: Panel debate on progress achieved**

This panel discussion brings together representatives from countries at various stages of progress. With different programme statuses and backgrounds, panelists will highlight the conditions required for progress, from siting to commissioning, revealing relevant social, political, scientific, technical and economic aspects. This session aims to illustrate the complexity of the cases, to show how rigorous treatment and management can lead to relevant results when structured in a stepwise approach, which is supported at all stakeholder levels.

General lessons learnt in achieving success could be drawn from these case presentations.

### **Outcomes of Younger Generation Session**

Representatives of each group from the Younger Generation Session will share the outcomes of this session and their viewpoints.

*Wednesday, 09 June 2021*

*Session 2: Demonstrating technical reliability for operational and long-term safety (including peer reviews)*

#### **Session 2A: The role of underground research laboratories and international collaboration**

This session invites speakers to share their experiences on different ways to demonstrate technical reliability for operational and long-term safety. This session will begin with experiences of operational underground research laboratories. Speakers from different countries and international organisations will share the current status and future plans on the research and international collaboration in several underground research laboratories and geological repositories. A representative from the Younger Generation Session will share the viewpoints.

#### **Session 2B: Panel debate on demonstrating technical reliability**

This session invites panellists to share their perspectives on challenges to demonstrate technical reliability for operational and long-term safety, the role of underground research laboratories, added value of international collaboration (including peer reviews) and the outlook for further co-operation. A representative from the Younger Generation Session will share the viewpoints on how to demonstrate technical reliability.

*Session 3: Elements for building and maintaining competences (from siting to construction to operation)*

#### **Session 3A: Elements for building and maintaining competence**

This session invites speakers to share their perspectives on elements for building and maintaining competence, including knowledge management, dialogues between regulators and implementers, R&D and sharing experience through international organisations. A representative from the Younger Generation Session will share the perspectives on building and maintaining competence.

#### **Session 3B: Panel debate on building and maintaining human capacity**

This session invites different categories of stakeholders to discuss how to build and maintain competency of implementers and regulators through national programmes, international projects and education in universities. A representative from the Younger Generation Session will share the perspectives on the needs and suggestions from the younger generation.

*Thursday 10 June 2021*

*Session 4: Building and maintaining trust (involvement of FSC)*

**Session 4A: Best practices to build and maintain trust**

This session invites speakers from the NEA Forum on Stakeholder Confidence (FSC) to share the best practices to build and maintain trust with local stakeholders (and the public). The presenters will focus on the concepts of added value and youth engagement sharing specific examples of current practices in engaging stakeholders. This session also invites social scientists, non-governmental organisations (NGO) and a representative from the Younger Generation Session. The elements covered in this session include factors for building and maintaining trust, examples of creating a dialogue with local stakeholders/affected communities and the engagement of youth. Local community representative(s) will be invited to show their experiences and lessons learned in the siting and development of a deep geological repository.

**Session 4B: Panel debate on communicating uncertainty from the scientist to the community**

This session invites panelists who support the choice of using geological repositories to manage radioactive waste and speakers from NGOs/community organisations who have concerns and/or questions focused on the decision to use geological repositories to provide a platform for both sides to share their reasoning and concerns. This discussion/debate will focus on the nuanced considerations involved in disseminating related information, particularly uncertainties, to initiate discussions with stakeholders which may have varying levels of interest and scientific background. This session will include an investigation on the ethics involved in the discussion. A representative from the Younger Generation Session will share the viewpoints on geological repositories.

*Session 5: Outcome Session*

**Session 5A: Summary of the Conference**

The conference rapporteur will report key messages of the conference.

**Session 5B: Panel Debate**

The rapporteur and the Session Chairs will discuss key messages and engage in discussion with participants.

### *Session 6: Summary and Closing Session*

Final keynote addresses and closing of conference.

### *Friday 11 June 2021*

#### *Site visits for pre-registered participants*

A site visit has been made available to pre-registered participants to a low and intermediate level waste repository with an exhibition on the underground rock characterisation facility (ONKALO) at Olkiluoto, Finland.

Website:

<https://www.tvo.fi/en/index/company/comeandvisitus/sitestovisitatolkiluoto.html?404path=Sites-to-visit-at-Olkiluoto>

## **Exhibits**

Exhibition booths will be set up for at most 19 organisations to showcase advancements in technologies and geological repository development. Exhibition booths will remain open during all sessions and breaks. All exhibitors will be provided with one 45x120 cm table and 2 chairs. Poster boards are available for the first ten organisations that register. A fee of EUR 6,000 is due for each exhibition booth. However, the exhibitor fee is EUR 8,000 for each exhibition booth when logos are shown in programmes, totems and other materials.

## **Language**

The working language is English.

## **Registration**

Choose one of the two registration links below:

- For participants, chairs, speakers and students: <http://www.oecd-nea.org/confdb/confdb/conf?id=432>
  - ✓ A fee of 350 euros (except for students); payment by credit card or bank transfer
  - ✓ Registration and payment deadline for participants, chairs and speakers: 6 May 2021

- ✓ If Master and PhD students are interested in speaking in Sessions 2-4, they must submit a 300-500 word synthesis of their presentation on the topic. Final speakers will be selected by NEA Secretariat based on the documents submitted. The NEA will cover transportation and accommodation costs of the 3 selected students.
- ✓ Registration deadline for students: 28 February 2021
- For Young professionals only: <http://www.oecd-nea.org/confdb/confdb/conf?id=433>
- ✓ A fee of 175 euros applies; payment by credit card or bank transfer
- Interested members of the media should contact [press@oecd-nea.org](mailto:press@oecd-nea.org) for press arrangements.

### Programme Committee

Gianfranco BRUNETTI	EC
Bruce CAIRNS	NDA, UK
Daniel DELORT	Andra, France
Sergey DERYABIN	Rosatom, Russian Federation
Alice DIMA	ANDR, Romania
Roger GARBIL	EC
Jussi HEINONEN	STUK, Finland
Evgeny KOLODIN	NEA
Pascale KÜNZI	BFE, Switzerland
Jinfeng LI	NEA
Kamishan MARTIN	NEA
Gerald NIEDER-WESTERMANN	IAEA
Christopher REGAN	NRC, USA
Lisa SMADJA	NEA
John STEIN	NEA
Rebecca TADESSE	NEA
Hiroyuki UMEKI	NUMO, Japan
Marjut VÄHÄNEN	FinNuclear, Finland
Porsche WILLIAMS	NEA

### Key dates

- 28 February 2020 – 1<sup>st</sup> announcement
- 30 March 2020 – Registration and exhibition application open

- 31 December 2020 – End of exhibition application
- 28 February 2021 – End of submission of biographical forms from Chairs and speakers as well as synthesis of presentations from Master and PhD students
- 31 March 2021 – Issue of selection results of Master and PhD student speakers and final programme
- 23 April 2021 – End of submission of presentations
- 6 May 2021 – End of registration
- 7 – 11 June 2021 – Conference

## Organisational structure

The NEA Secretariat and the Programme Committee will work together for the preparation of this conference.

## Venue

The conference will be held in Sirkus Hall of Paasitorni in Helsinki, Finland.

Website: <https://www.paasitorni.fi/en/spaces/sirkus/>

Hotels near this venue include:

- Hotel Paasitorni (the same building)  
<https://www.paasitorni.fi/en/hotel/>
- Original Sokos Hotel Helsinki  
<https://www.sokoshotels.fi/fi/helsinki/sokos-hotel-helsinki>
- Original Sokos Hotel Vaakuna  
<https://www.sokoshotels.fi/fi/helsinki/sokos-hotel-vaakuna>
- Radisson Blu Plaza  
<https://www.radissonhotels.com/en-us/hotels/radisson-blu-helsinki?checkInDate=2020-02-21&checkOutDate=2020-02-22&searchType=lowest&promotionCode=&taxIncludedRegion=false&adults%5B%5D=1&children%5B%5D=0>
- Hilton Helsinki Strand  
<https://www3.hilton.com/en/hotels/finland/hilton-helsinki-strand-HELHIHI/index.html>
- Scandic Hakaniemi



<https://www.scandichotels.com/hotels/finland/helsinki/scandic-hakaniemi>

- Scandic Paasi

<https://www.scandichotels.com/hotels/finland/helsinki/scandic-paasi>

- Scandic Kaisaniemi

<https://www.scandichotels.com/hotels/finland/helsinki/scandic-kaisaniemi>

## Audience

The target audience is composed of all stakeholders related to geological repositories, including engineers and scientists in radioactive waste management implementers, research organisations, regulators, decision makers, responsible government ministries, environmental organisations and the public. International organisations are also invited. University students (Bachelor's, Master and PhD students) and young professionals with 0-5 years' work experience or under 30 years old are encouraged to register for the Younger Generation Session and participate in discussions in other sessions.

## Contacts

Conference Email: [icgr2020@oecd-nea.org](mailto:icgr2020@oecd-nea.org)

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## Related links

ICGR

[www.icgr2020.org](http://www.icgr2020.org)

NEA RWMC

[www.oecd-nea.org/rwm/rwmc/](http://www.oecd-nea.org/rwm/rwmc/)

NEA FSC

[www.oecd-nea.org/rwm/fsc/](http://www.oecd-nea.org/rwm/fsc/)