



IAEA

International Atomic Energy Agency
Atoms for Peace and Development

Workshop on Planning and Implementing Construction of Underground Research Facilities and Deep Geological Repositories

**Hosted by the
Government of China**

**through the
Beijing Research Institute for Uranium Geology (BRIUG)
and virtual participation via Cisco Webex**

8–12 July 2024

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Information Sheet

Introduction

Member States operating a nuclear power plant, or planning to establish future use of nuclear power, must implement solutions for the resulting back end management for intermediate level waste, high level waste and spent nuclear fuel, when classified as radioactive waste. Deep geological repositories (DGRs) offer an internationally accepted solution for the safe and sustainable management of such wastes (see IAEA General Safety Guide GSG-1). Member States operating research reactors must also provide an endpoint for research reactor spent fuel, and some Member States are conducting comparative optioneering studies between different disposal concepts, including a small scale DGR.

Inherent to all DGR programmes is the construction of underground accesses either via shaft or ramp in order to confirm the suitability of a site by means of complementary underground investigations before the start of the DGR construction, or – if this is deemed not to be necessary - to access the subsurface for the start of construction of a DGR with supporting scientific confirmation programmes. The topic of this technical meeting will primarily focus on the construction of new underground facilities and the

investigations planned through these facilities at a previously undisturbed site as the first major subsurface construction step in a DGR programme.

The move from surface-based to underground investigations is a key step in a DGR programme and one that requires a significant level of confidence in a site's suitability to justify the costs and environmental disturbances involved. It is therefore likely that the site has already been identified as the preferred location for a DGR.

Therefore, research conducted underground at the potential DGR site should be seen as confirmatory, rather than explorative. Resolving as many uncertainties as possible prior to going underground at the potential DGR site will be a significant factor in reducing the risks of going underground at an unsuitable site.

Interactions between safety assessments, data collection and site descriptive modelling as well as refining the repository design, layout and engineered barrier systems (EBS) adapted to the local conditions and the integration of the results into optimization strategies for initial underground construction, will be an integral part of any specific planning activity.

It is very important to recognize this in all planning activities for underground investigations and in particular to ensure that the requirements for the investigations do not conflict with the overriding requirements of the potential future DGR. This requires ensuring that the features of the site (for example, the safety functions provided by the geological environment and the support of the local community) that led to its selection to host a DGR are not jeopardized.

Underground excavation's will disturb the host rock and its overlying rocks. Nevertheless, the excavation process should be carried out with sufficient care (regarding both excavation method and the exact locations of the excavations) to preserve as far as possible the integrity and containment safety functions of the geological environment. In this respect it is important to reflect that underground excavation for a DGR is more than just a mining activity because it is what is left around the excavation, rather than what is removed from it, that is of value. Therefore, careful planning before going underground is essential.

The aim of this event will be to share experiences gained in this area by Member States from initial planning activities through to implementation. Experiences from Member State programmes at all stages of DGR development is relevant to the event, but particularly from those programmes with relevant construction experience or planning their first underground excavation at a potential DGR site.

The output from this event will raise awareness and transfer knowledge between workshop participants on the important planning stage of a DGR programme, thus providing support for implementation consistent with international good practices. The event may also contribute to further improving clarity and content of a draft IAEA publication "Practical Consideration and Experiences in Going Underground at a Potential Deep Geological Repository Site". This draft publication is intended to support Member States in this important planning stage of a DGR programme.

Objectives

The purpose of the event is to share recent experiences in planning and implementing the construction of underground research facilities and deep geological repositories. A particular focus of the event will be the ongoing developments at a site in Beishan, China.

The transfer of knowledge expected from this event will be based on workshop participants experiences from the national programmes they represent as well as the content of a draft IAEA publication “Practical Consideration and Experiences in Going Underground at a Potential Deep Geological Repository Site”. A particular focus will be on the recent experiences gained by the host organization, BRIUG, as they implement construction of the underground research facilities (URFs), as well as the associated prior site characterization activities and activities to planning the RDD activities during construction and inside the URF once established.

The information gained through workshop discussions will further support the development of the draft IAEA publication, in particular ensuring clarity of knowledge presented and adding specific examples as warranted.

The event will discuss and consider issues and constraints to be taken into account when a programme decision is made to go underground for the first time. It will also serve to and raise awareness of potential risks that could affect programme success.

Target Audience

Specifically the event is expected to be useful to radioactive waste management facility planners and implementers, responsible government ministries, regulators and their technical support organizations in Member States in event their radioactive waste disposal obligations, with a focus on those Member State with established high level radioactive waste (HLW) disposal programmes and specifically those MSs planning on the excavation of shafts or ramps to access the subsurface in previously undisturbed rock formations for the purpose of investigating a sites suitability to host a DGR, or potentially an Underground Research Facility constructed in support of a DGR programme. MSs in early repository programme planning stages will also benefit as the technical event will assist them in designing and prioritizing DGR programme efforts.

Working Language(s)

The working language of the event will be English. Interpretation will not be provided. All communications, reviews and discussion papers must be submitted in English.

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy

Authority) or organization for onward transmission to the IAEA by **30 April 2024**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
 - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
 - Persons without an existing NUCLEUS account can register [here](#).
2. Once signed in, prospective participants can use the InTouch+ platform to:
 - Complete or update their personal details under ‘Complete Profile’ and upload the relevant supporting documents;
 - Search for the relevant event under the ‘My Eligible Events’ tab;
 - Select the Member State or invited organization they want to represent from the drop-down menu entitled ‘Designating Authority’ (if an invited organization is not listed, please contact InTouchPlus.Contact-Point@iaea.org);
 - If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
 - Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A) and/or the Grant Application Form (Form C);
 - Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application, together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **30 April 2024**.

For additional information on how to apply for an event, please refer to the [InTouch+ Help](#) page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency’s Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA’s scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA’s mandate. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA’s view, the participant will make an important contribution to the event.

The application for financial support should be made, together with the submission of the application, by **30 April 2024**.

Venue

The event will be hosted by the Beijing Research Institute for Uranium Geology (BRIUG), China.

Visas

Participants who require a visa to enter China should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of China.

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.