

# ADVANCED INTERNATIONAL TRAINING PROGRAMME



ITP: 308

## Mine water and mine waste management

22 May – 4 June 2023, Online Course

March 2024, in one of the participating countries

Closing date  
for applications:

**> 20 January  
2023**

## Dear reader,

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This Advanced International Training Programme (ITP) is specially designed for professionals qualified to participate in reform processes of importance on different levels and holds a position in their home organisation with mandate to run processes of change. It offers support to strengthen, adapt and maintain capacity over time in order for their organisation to define and achieve goals in both the short and long term. Participants will be presented with the latest development in their area of work, supervised by skilled Swedish colleagues and experts, develop a network of colleagues from other countries and enhance knowledge in new working methods. The methodology used is based on the assumption that the home organisation wishes to carry out changes and is willing to invest its own resources to achieve these changes.

Mining provides raw materials for construction of infrastructure, energy production and for all tools and appliances we use daily. Our society depends on mining for supply of raw materials, not only metals but also non-metal resources such as building stone, limestone, sand and potash. While mining supplies the raw materials we need, the mining industry can also be an important employer, investor and tax payer contributing to local, regional and national economies.

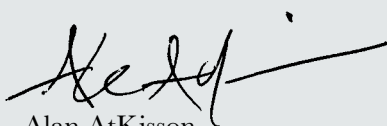
At the same time as the benefits of mining are apparent there are few industries that impact the environment in such an obvious and intrusive way. Mining and the waste left by mining can seriously impact the environment and the people depending on it. Managing and mitigating the impacts of mining on the environment has come to be one of the most considered aspects when planning, reviewing, permitting and managing mining projects.

The Geological Survey of Sweden (SGU) organises the training programme with support from the Swedish Environmental Protection Agency (Swedish EPA) and Luleå University of Technology (LTU). The programme is primarily offered to staff and management at government authorities tasked with permitting and inspecting mines. The training presents the science behind management of mine water and mine waste, and integrates several principles equally important to prevent and mitigate environmental impacts: professionalism, transparent processes and a human rights perspective.

The aim is to reduce knowledge gaps between authorities and industry and to make information about mining and the environment readily available to all stakeholders. The training focusses on mine waste and mine water and aims to improve permitting procedures, the quality of inspection and reporting at the participating agencies.

The programme involves a preparatory phase Online, two weeks of theoretical and collaborating studies online, 10 months of project work with mentorship from Sweden and a final, one week long regional conference in one of the participating countries.

Sida and SGU hereby invites you to nominate candidates.



Alan AtKisson  
DIRECTOR OF PARTNERSHIP  
AND INNOVATION  
Sida



Anneli Wirtén  
DIRECTOR GENERAL  
Geological Survey of Sweden  
SGU

## Programme objectives

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The long-term objective is to develop a sustainable use of natural resources and to secure safe living environments for future generations.

Important milestones to the long-term objective are the development of transparent and inclusive processes of permitting and inspecting mines, to implement organisational changes and skills development needed for continuous improvement, and to appreciate the importance of clean and safe environments where non-discriminating economic growth can take place.

The immediate impact of the programme activities should be a better understanding of current and future environmental risks, impacts and mitigation. The participants will develop new approaches to data collection and sharing of information. They will strengthen regional professional networks supported by colleagues from agencies in Sweden. The participants will throughout the programme work with current and pressing needs at their workplace that involves mine waste and mine water.

### BENEFITS

**Participants will better understand and improve their ability to handle and share information about:**

- › **mineral extraction, society and environment**
- › **environmental protection and biodiversity**
- › **waste generation, waste prevention, recycling and waste disposal**
- › **acid rock drainage, waste characterisation, water treatment**
- › **waste rock and tailings storage facilities**
- › **mine closure and rehabilitation**
- › **transparent and inclusive processes in permitting and inspection**

## Contents

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The geoscientific sessions include the fields of economic geology, geochemistry, hydrology, geotechnical stability, biodiversity and ecology.

**During the Online training, virtual field visits** take us to operating mines, closed mines and sites where rehabilitation is on-going.

Governance, the processes of permitting and inspecting mines, and the interaction between authorities, industry and society is studied in collaborating sessions, presentations.

The duties and tasks of the participants at their work places are analysed and developed in change projects. Change projects are suggested by the participants when applying for the programme, defined in collaboration with organisers and other participants. These projects should, if possible include the participation of several staff at the authority and incorporate geoscientific and governance components. The change process builds on acquired skills and is supported by mentors selected by SGU.

The final regional conference offers the opportunity to share acquired skills and experiences with other participants and to evaluate training and projects. In addition, three days of field visits will be planned for each regional conference. The participants will also interact and communicate with a wider audience and stakeholders in mining and environmental protection as the conference is open to an extended group of representatives from industry, civil society and government authorities.

# Programme structure

The programme comprises an application and selection process followed by preparatory studies, two weeks of training, ten months of project work supported by mentors, and a regional conference with field visits, where experiences and outcomes are presented and shared.

## **Phase 1: Preparatory studies**

A study material developed for the training programme is shared with all participants **Online**. The material introduces all participants to the background of mining and the environment.

## **Phase 2: Online 22 May – 4 June, 2023**

The SGU offers two weeks of Online training in or near the participants home countries. Training location will be announced closer to the training occasion. Experts from Luleå University of Technology and the Swedish EPA will take part in the training. Participants will discuss their country and agency, mining industry and environmental challenges. The change projects will be developed continuously during the training lectures, site visits and collaborations.

Some of the sessions will be:

- Mineral resources for sustainable development: opportunities and challenges
- Governance for environmental protection and human rights
- Permitting and monitoring the mineral sector from exploration to closure
- A gender perspective on mining
- Introduction to mine waste and mine water
- Basic geochemical concept
- Waste characterisation and prediction
- Design and operation of waste rock dumps and tailings storage facilities
- Prevention of acid mine waters
- Introduction to mine closure and remediation
- Sampling and monitoring
- Sustainable mining
- Planning and cost for closure

## **Phase 3: Change projects and mentorship**

The participants develop and implement change projects. The knowledge and tools from Phase 2 is incorporated at the work place and the change projects are implemented with the support of mentors from Sweden.

## **Phase 4: Regional Conference March, 2024**

All participants present their implemented change projects, outcomes, challenges and opportunities to the group. A wider audience is invited to the conference and the participants are given the opportunity to share experiences from the training programme with industry, civil society and government authorities. Three days of field visits with practical work and discussions make up a substantial part of the regional conference. The conference is intended as both a regional event on the subject as well as a training component where participants interact with all stakeholders.

## **TEACHING**

We alternate traditional lectures Online, practical exercises, group work and individual assignments. Live lectures on **Zoom** will not be recorded, however, some lectures will be available on the programme's training platform **Moodle**. Virtual study visits to operating mines, closed mines and rehabilitated mines are important components of the training, but field visits during the regional conference are vital to the programme. Participants are given the opportunity to study and discuss different geological settings, mineral extraction methods and waste storage facilities.

The number of participants is limited to 25 to ensure a close working relationship between participants, lecturers and mentors.

## **MANAGEMENT AND STAFF**

The teaching staff are from Luleå University of Technology, Swedish EPA, SGU and include guest speakers from industry and civil society. The training is managed and coordinated by SGU and mentors are recruited as per the requirements of the change projects.

## **TIMETABLE**

### **WHERE:**

Phase 2 will take place Online in or near the participants home countries.

Phase 4 will be conducted in one of the participating countries.

### **WHEN:**

Phase 2: 22 May – 4 June.

Phase 4: March, 2024. At a venue that will be announced later.

# Admission requirements

## INVITED COUNTRIES

Kenya, Liberia, Rwanda, Sierra Leone, Tanzania and Zambia are prioritised countries.

**The participants, and the change project they propose, must be supported by their organisation with a clearly stated commitment for the applicant to participate in all phases of the training and to support, implement and finalize the change projects.**

## TARGET GROUP

The programme invites applicants from government authorities involved in permitting and inspecting mines such as environmental protection agencies, mining inspectorates, mine safety departments or equivalents.

The applicants should have an academic background and work duties that involve participation in permitting or inspection of mines or management of such processes. Engineers, geoscientists and environmental specialists with a bachelor's degree or higher will be prioritized. Project managers, economists or other experts that actively contribute to the agency's core functions are also encouraged to apply. We aim for a balanced mix of participants and genders in the ITP 308, and encourage organisations to nominate both men and women for application.

Applicants should propose change projects that have a direct bearing on the management of mine waste and mine water. The applicants should preferably propose common change projects.

## SELECTION CRITERIA

Only 25 individuals are accepted for each training. Therefore, numerous selection criteria are considered: the group composition, individual countries and organisations. In addition,

variety amongst individuals are sought, e.g., gender, work backgrounds, work positions, no. of years in the industry, academic backgrounds, mixed specialist areas and so forth. It is also not guaranteed that all candidates with the same change project will be selected for training.

**A computer with camera, sturdy headphones and time off from work during training is a prerequisite for attending the programme. Interviews with applicants will take place before selection to evaluate equipment, platforms and language skills.**

## LANGUAGE REQUIREMENTS

The training programme will be organised and conducted in English. Proficiency in English shall be certified on the Application form. In addition and prior to selection, an interview will be held with each considered applicant.

## HEALTH REQUIREMENTS

Considering the training programme may consist of international travels and work away from home, good health and full working capacity is conditioned. It is therefore recommended that candidates undergo a medical examination before filling in the Medical Statement in the Application form.

## COSTS

The Swedish International Development Cooperation Agency (Sida) will cover all costs related to all programme phases except:

1. All costs related to change projects
2. VISA fees
3. Personal expenses incl. laundry and private shopping
4. Local travel costs
5. Local airport taxes and departure fees

The implementation and completion of change projects must be fully funded and supported by the participant's authority.

## APPLICATION PROCESS

Applications should be written on the special form attached and include a recent photograph and required information and documents.

The application should be approved by the official nominating authority in your country as a proof of commitment and support to complete all phases of the training including support and funding to implement the proposed change project.

Filled-in application forms, together with all required supporting documents, should be sent directly to the Programme Secretariat at [ITP@sgu.se](mailto:ITP@sgu.se). In the application form, the applicant must complete the Medical Record column as well as the Language Requirement section in full. The application form must have all required signatures and a recent photo of the applicant attached. **Only electronic applications sent to ITP@sgu.se will be accepted.**

Applications where several staff members collaborate in a common change project are prioritized. Note that also individual contributions and components must be clearly outlined in

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collaborative change projects. The proposed change projects must clearly state how team members contribute to the implementation of the collaborative project.

**Note!** Individual applications must be filled in also for team applications. Selected candidates shall be aware of the commitment to participate in all phases of the programme. No incomplete applications or late submissions will be accepted after closing date.

### Selection process

Selected candidates will be notified by e-mail not later than **3 February, 2023**. Once selected, the candidate must participate in an interview process before receiving a letter of acceptance.

As part of Sida's work with capacity and institutional development Sida offers international training programmes (ITP) for participants from low-and middle-income countries in priority areas. ITP's methodology takes account of the desire to develop and reform that the participants' organisations have expressed in their application to the program.

The programmes cover areas of strategic importance to the social, environmental and economic development of co-operating countries and are based on identified priorities and needs. In the long-term perspective, the programmes shall contribute to institutional strengthening and capacity development in the co-operating countries.

### ORGANISER

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**Geological Survey of Sweden (SGU)**, the expert agency for issues relating to bedrock, soil and groundwater in Sweden. The SGU supports sustainable mineral extraction and mining industry. We promote the use of geological information in societal planning and unite and strengthen geological research in Sweden.  
[www.sgu.se](http://www.sgu.se)

#### Contact

ITP 308 secretariat  
Geological Survey of Sweden  
[ITP@sgu.se](mailto:ITP@sgu.se)

### PARTNERS

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**Luleå University of Technology, (LTU)**, a leading university of technology which works together with the world around us to build an attractive, sustainable society. Through our research and education, which are characterised by creativity, innovation, initiative and responsibility, we shape the world we live in – with future generations in mind.  
[www.ltu.se](http://www.ltu.se)



**The Swedish Environmental Protection Agency (Swedish EPA)** is a national agency for environmental protection and nature conservation. Our tasks are to ensure that environmental policy decisions are implemented and to present proposals for environmental policy and legislation to the Swedish Government.  
[www.naturvardsverket.se](http://www.naturvardsverket.se)