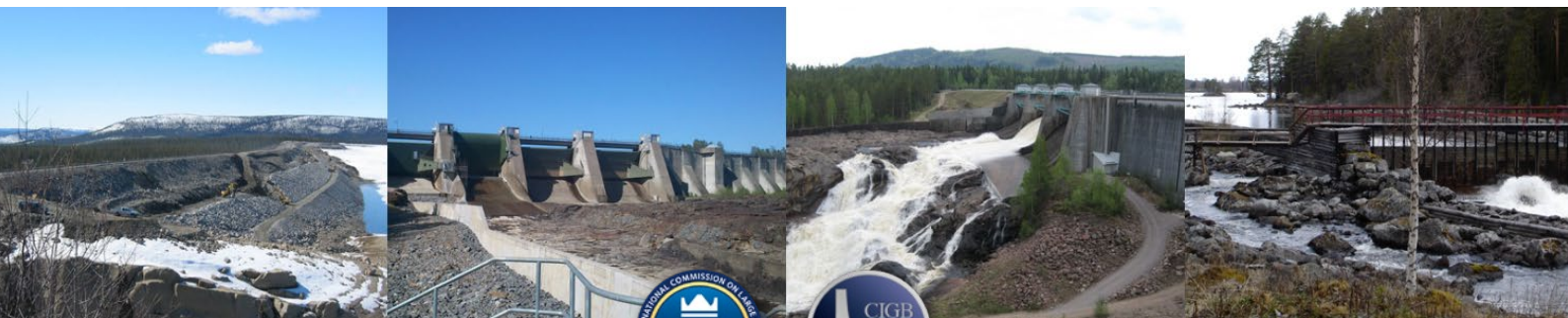




91st ICOLD Annual Meeting

11–15 June, 2023

The Swedish Exhibition Centre,
Gothenburg, Sweden



INITIAL BULLETIN

WELCOME TO GOTHENBURG, SWEDEN 11–15 June 2023

Invitation from the Organizing Committee:

Dear colleagues, the Swedish National Committee of ICOLD, SwedCOLD, is happy to invite you to participate in the 91st ICOLD Annual Meeting that we will hold in Gothenburg in June 2023.

The relationship between ICOLD and the Swedish hydropower and mining industries has always been important to us, and has provided a good international base for our work. In Sweden this is of special importance as the hydropower industry provides close to 50 % of all electricity in the country, and the mining industry is considered to be strategically important and the prerequisite for many of the other industrial activities in the country. This means we are depending on a good engineering practice to build and maintain our dams. We would like to share our knowledge on these practices as well as to receive the experiences and knowledge of the ICOLD international community.

Sweden in June will be at its best. The Swedish summer will give you lush green bright nights, blue sea and harsh grey rock in the archipelago. We are sure you will be enjoying our Swedish hospitality with an exciting, technical program, interesting tours, nice social activities and a pleasant program for our accompanying persons.

For the Organizing Committee

*Anders Isander
Chairman*

Organizing Committee

Anders Isander (Chair) - Uniper

Maria Bartsch (President SwedCOLD) - Svenska kraftnät, Communications and Liaison

Per Elvnejd (vice President SwedCOLD) - Skellefte River Water Regulating Enterprise, Communications and Tours

Erik Nordström - Vattenfall, Technical Program

Sara Töyrä - LKAB, Tours and Technical Program

Lisa Broberg - Sweco, Tours

Öyvinn Lier - Norconsult, Finance, Sponsorship and Exhibition

Gabriella Molinder - Sweco, YEF

Finn Midbøe - Rejlers, Tours

Anna Sundström - MeetX, Meeting Venue and Arrangements, Social and Accompanying Persons Program

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Please visit our website for up-to-date information including registration, sponsorship and exhibition hall.

www.icold-cigb2023.se

A Message of Invitation for ICOLD 2023 from President Michel Lino

Dear colleagues and friends of ICOLD,

On behalf of the International Commission of Large Dams/Commission Internationale des Grands Barrages (ICOLD/CIGB), I am pleased to invite our 104 National Committees to send delegates and their accompanying persons to 91st Annual Meeting of ICOLD. The meeting will be held 11 – 15 June 2023, in Gothenburg, Sweden.

Gothenburg is a friendly city located on the west coast of Sweden. She is called the second Swedish capital and known for its culture and long history of international trade and influences. As the second-largest city in Sweden, Gothenburg boasts a vibrant cultural scene, world-class restaurants, sustainable living, and a fascinating history – all within walking distance from our ICOLD hotels and conference center. In June we should enjoy very pleasant weather conditions.

This 91st Annual Meeting of ICOLD will be hosted by the National Committee of Sweden, SwedCOLD, who have been preparing for several years now. Several excellent Study Tours will be offered before and after the meeting along with our usual ICOLD exclusive Cultural Evening and Technical Excursion. SwedCOLD is also hosting a special symposium as part of ICOLD 2023 themed Management for Safe Dams. The purpose of this symposium is to share information from case studies, technologies, and innovations to increase the safety of dams and levees along with their associated benefits, perfectly fitting with the essential commitment of ICOLD to Dam Safety.

I am convinced that the ICOLD 2023 Organizing Committee, led by Maria Bartsch, President of SwedCOLD and former Vice-President of ICOLD, and Anders Isander, Chairman of the Organizing Committee will arrange a wonderful event and a friendly and inclusive reunion of the ICOLD family.

The year 2022 saw dramatic droughts across the northern hemisphere, devastating floods in South Africa and Pakistan, and a global energy crisis compounded by the war in

Ukraine. In our changing world, ICOLD must be a key player in offering solutions to climate change adaptation and energy transition. We, dam and reservoir professionals, must pledge to play our full part in the process. Our annual meetings and congresses are milestones in our efforts to achieve these goals.

So, I warmly encourage our ICOLD family and friends to gather for ICOLD 2023 in Gothenburg as we continue the work to meet our mission in setting standards and guidelines to ensure that dams and levees are built and operated safely, efficiently, economically, and are environmentally sustainable and socially equitable. I invite representatives from all 104 ICOLD National Committees to participate in this meeting as we endeavour to meet the challenges of the 21st century in the development and management of the world's water and hydropower resources and to be part of the solution to the crisis that the planet is going through.

I will be glad to welcome you in Gothenburg in June 2023 in person and in good health.

Yours sincerely,



Michel Lino
President of ICOLD

ABOUT ICOLD

The International Commission on Large Dams (ICOLD) is a non-governmental international organization which provides a forum for exchange of knowledge and experience in dam engineering and management. ICOLD is a leader in setting standards and guidelines to ensure that dams are built and operated safely, efficiently and economically, and are environmentally sustainable and socially equitable. Every year, ICOLD holds an Annual Meeting and Symposium in a selected country.

ICOLD membership consists of the National Committees of more than 100 countries. The Swedish National Committee of ICOLD (SwedCOLD) is the National Committee representing Sweden.

Technical Committees of ICOLD are the heart of the organization. Membership on each Committee is determined by the needs of the Committee and the countries that choose to be represented. An important part of the annual ICOLD event is the opportunity for all delegates to observe the meetings and workshops of the Technical Committees and interact with experts from other countries.

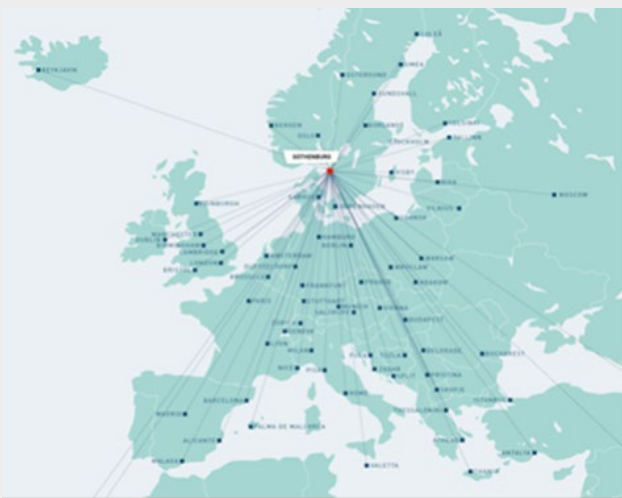


Photo: Happy Visuals/Göteborg & Co

GOTHENBURG

– Sweden's major port

Come and explore the Swedish west coast with its beautiful archipelago, friendly people and bustling night life.

It is a pleasure to welcome all delegates from around the world to the city of Gothenburg, the second largest city in Sweden. It has a population of approximately 600.000 people and was founded by the king Gustavus II Adolphus in 1621. 400 years later the city is a vibrant cultural and industrial hub with the biggest port in Scandinavia. It is the home of internationally renowned companies such as Volvo and SKF. Gothenburg has excellent connections via the second-largest airport in Sweden, the city's main railway station and several motorways making Gothenburg easily accessible. The venue is located only

20 minutes by bus from the airport. With a very modern and highly efficient local transportation network, getting around in the city is quick and easy.

Gothenburg is a buzzing city with a large selection of hotels and restaurants, a wealth of entertainment and attractive shops, Gothenburg has everything that a large city needs, all within convenient walking distance. The pleasant atmosphere and top facilities make Gothenburg one of Europe's leading event cities.

In and around Gothenburg you have the rich nature with an extraordinary archipelago, cultural and tourist attractions.

VENUE AND HOTELS

The conference will take place at the convention center *Svenska Mässan*, centrally located in Gothenburg, with everything the

town can offer at walking distance. All hotels are located within just a couple of minutes' walk, unless you stay at the *Gothia Towers Hotel* which is in the same complex as the conference and exhibition.



Photo: Gothia Towers/Göteborg & Co

TECHNICAL PROGRAM

Delegates from around the world will gather to share their experience and expertise on dams and the management of dams and reservoirs. Whatever is the purpose of your facilities it is likely that you will encounter another delegate to discuss their planning, design, operation, surveillance, rehabilitation, renewal and possibly also removal. The technical program includes several occasions on sharing knowledge and will include:

- **Symposium – Management for Safe Dams.**
- **Workshops – Various themes including dam surveillance, tailings dam management and capacity building.**
- **Short courses – Topics of interest for regulators, owners, consultants and contractors.**
- **ICOLD Technical Committee meetings – Open to all delegates, as observers.**
- **ICOLD Technical Committee workshops – Introducing new topics, and summarizing completed Bulletins.**
- **Technical and study tours.**

SYMPOSIUM

On Tuesday-Wednesday, June 13-14, a symposium with the theme Management for Safe Dams will be held.

The invitation for abstracts has been made and we encourage potential presenters to send in their abstracts before October 16, 2022. More information and templates can be found on the ICOLD 2023 web-site, <https://icold-cigb2023.se/>

Dams are a benefit to the society. The purpose of this symposium is to share information from case studies, technologies and innovations to increase the safety of dams and their associated benefits. This includes management of dams and reservoirs, dam safety, surveillance, decision making, rehabilitation, and adaption regarding climate change and overall societal expectations.

There is a growing interest from both authorities and investors which contributes to the development and complements ICOLD initiatives. Global Industry Standard on Tailings Management is one example. Updating of national legislation and guidelines are other examples.

For this symposium we encourage contributions on the six topics described

below including dams for various purposes such as hydropower, flood control, irrigation and other consumptive uses, as well as tailings in the mining industry.

The 1.5 day symposium will include an introductory session with invited speakers. This will be followed by four to five parallel sessions where a selection of papers will be presented by some of the authors. The symposium will also include a panel discussion and workshop on mentorship to support women professionals in the dam industry.

T1 –Safety Management of Dams and Levees

The topic of dam safety management can cover a broad field of aspects and according to the ICOLD bulletin 154 the system should:

“establish a systematic and consistent way of transforming an operating organization’s values, principles, policies and procedures into the products or outputs of industrial or commercial activities”

Sub-activities that could be part of the systematic work commonly starts with a set of policies and objectives followed by planning of activities and resource allocation to achieve the objectives when implemented. A crucial, but complicated, objective is to define what a tolerable risk

level is. Sometimes the end result could be to apply the principle to reduce risks as low as reasonably practicable (ALARP).

To be able to evaluate if the dam safety management system maintain operation in line with its defined objectives, monitoring and evaluation is needed. Utilization of the information collected in monitoring and evaluation should be used for audits and review, preferably by independent reviewers. Finally the outcome of monitoring, evaluation, audits and reviews should be used for tuning and updating the dam safety management system in continuous improvements.

Not only the owners, board of directors, CEOs and other executives, competent and committed as well as dam safety employees are part of the dam safety management. Also the investors could have an important role to influence or form requirements on the governance and safety management to initiate cooperation.

T2 – Surveillance and condition monitoring

A reliable and efficient dam safety management system is dependent on input from high quality data on the current status of dams to be able to make knowledge based decisions. Used methods, systems, technologies and organizational set-up is therefore of major importance to verify the dam safety level and to evaluate current status of the dams and their reservoirs.

Surveillance is commonly based on a range of sources from routine rounding and visual inspection to advanced high-tech instrumentation and data analytic tools and e.g. artificial intelligence for evaluation of collected data. A challenging part of data evaluation is the definition of relevant alarm and alert levels where different types of action must be taken to prevent a potentially dangerous situation for a dam.

On existing dams the condition monitoring and assessment of the current and potential future status, or remaining service-life of a structure could be in focus. A cost-effective approach on assessment is to apply the principle of progressive screening which imply that the status or condition of a dam is defined by successively increasing the level of

details when needed. Commonly the degree of details in the assessment often correlate to the level of insight of the actual status or knowledge on e.g. origin for any degrading processes ongoing.

T3 – Analysis, modeling and decision making

Regardless of what type of analysis is carried out, a model is needed, i.e. an image that describes how to interpret the effect on the studied part of the facility, thus forming the basis for the simplifications and assumptions being made. Analysis can be anything from simple behavior models via analytical calculations to advanced numerical simulations. The purpose of the analysis is commonly to utilize collected data to investigate if e.g. dams and spillways fulfill the requirements. The results can also be used to suggest further investigations and monitoring due to lack of data, or suggesting and evaluating the effect of different mitigating measures. Aspects on different methodologies and validation of models or definition of acceptance criteria's are of major interest to get reliable results as basis for decisions. Models for decision between different courses of action can be based on a vast amount of parameters like safety aspects, technical, environmental, aesthetical, practical and last but not least, cost.

T4 – Rehabilitation and dam safety measures

Measures are taken when the deviation from set requirements is not acceptable (now or in the future). It is often a matter of reducing the load, slowing down the development of degrading or increase/restore the performance or capacity. Surveillance with planned inspections, and/or monitoring, can be used for evaluating potential development is sometimes selected instead of a physical measure. Methods for design and construction of measures for rehabilitation of dams, reservoirs, hydraulic design, mechanical equipment, waterways and other appurtenant structures are of great interest. Lessons learned from projects and incidents can be presented in case studies. Experience from follow-ups of previously performed rehabilitation and dam safety measures are crucial to feed the process of continuous

improvements and are valuable to share with the dam community.

T5 – Climate & environmental adaption.

A warmer climate with increasing climate variability will increase the risk of both droughts and floods.

The changing climate and increased expectations from the society on dam owners implies actions. One of the challenges for the sustainable energy system is to ensure balance in the power system. Here, hydropower, with its flexibility and cost-effective regulating capability, play a key role. A further challenge is to handle the demand for ecological rehabilitation and biodiversity of dammed and regulated rivers. Both the aspects on balance of the power system as well as biodiversity must be dealt with the prerequisite to fulfill the dam safety requirements and also handle the potential contradiction between the aspects.

Topics like environmental effects of hydropeaking, effects on the dams and the reservoirs by changing dam operations, prioritization between electricity production and environmental flows, effects of increased hydropower production will be discussed. Methodologies to mitigate any negative effects and reports from case studies and applicable technologies to reach these aims are of major interest.

T6 – Innovation

The world is facing an unprecedented change towards electrification driven by the Paris agreement heading towards a fossil-free society. This electrification cannot take place without an updated and sustainable hydropower designed to regulate an increasing amount of intermittent energy sources as well as mining activities for raw materials. Interdisciplinary research and innovative solutions, developed in close cooperation between academia, industry and the public sector will strengthen the position of the dam community. Hence researchers from different disciplines, industry and the public sector need to find innovative, mitigating, solutions on a multitude of issues that could have a negative impact on hydropower units, dams and rivers.

The theme will focus on innovative solutions regarding new technologies and methods that can be related to all the previous themes T1-T5 but with focus on the innovative part.

POSTER SESSION

The Poster Session will allow authors of papers that are not included for oral presentation during the symposium to share their main findings in a poster format. The presented themes for the symposium are valid also for the poster presentation.

ICOLD TECHNICAL COMMITTEES

Committee Workshops (Sunday, June 11)

In addition to the full day of meetings, some Technical Committees will present interesting workshops on Monday, June 12, which are open to all delegates. Some workshops will be held by committees that are starting a new mandate, to make sure the work will appropriately reflect international requirements and conditions and where contributions can be made. Similarly, when a committee has completed a Bulletin, they will present their approaches and findings to disseminate the results a broad representation of ICOLD delegates. In both

cases it is important for the participants to engage and contribute to produce good bulletins and implement the results. The workshop program is available on the ICOLD 2023 website.

Open Committee Meetings (Monday, June 12)

As part of the program for the 91th Annual Meeting, all delegates are invited to attend the meetings of ICOLD Technical Committees as observers, to gain insight into the development of the ICOLD Technical Bulletins that are so influential on dam engineering and development practices around the world. Please respect the rules set out by ICOLD and respective committee chairperson for attending committee meetings.

Committees	T.o.R.
A) Computational Aspects of Analysis & Design of Dams	2020-2023
B) Seismic Aspects of Dam Design	2020-2023
C) Hydraulics for Dams	2021-2025
D) Concrete Dams	2021-2024
E) Embankment Dams	2020-2023
F) Engineering Activities with the Planning Process for Water Resources Projects	2014-2022
G) Environment	2020-2022
H) Dam Safety	2021-2024
HWS) Historical Water Structure (Water Heritage)	2021-2024
I) Public Safety Around Dams	2016-2022
J) Sedimentation of Reservoirs	2020-2023
K) Integrated Operation of Hydropower stations and Reservoirs	2015-2023
L) Tailings Dams and Waste Lagoons	2020-2023
LE) Levees	2018-2024
M) Operation, Maintenance and Rehabilitation of Dams	2020-2023
N) Public Awareness and Education	2021-2024
O) World Register of Dams and Documentation	2021-2024
P) ICOLD Committee on Cementet Material Dams	2020-2025
Q) Dam Surveillance	2017-2022
RE) Resettlement Due to Reservoirs	2021-2024
S) On Flood Evaluation and Dam Safety	2020-2024
T) Prospective and new Challenges for Dams and Reservoir in the 21st Century	2020-2023
TRS) Tropical Residual Soils	2020-2023
U) Dams and River Basin Management	2021-2024
V) Committee for Hydromechanical Equipment	2016-2022
X) Financial and Advisory (ad hoc)	
Y) Climate change	2021-2023
Z) Capacity Building and Dams	2021-2024
ZX2) Young Engineers Forum (YEF)	

SwedCOLD WORKSHOPS AND SHORT COURSES

It will be possible to attend several Workshops and Short Courses in the beginning and/or at the end of the week. The Workshops are included in the registration fee for the Annual Meeting and for the Short Courses there will be an additional fee to cover costs.

Workshop 1 – Capacity Building

Representatives working with or considering working with the strategical issues connected to capacity building are invited to the workshop. Focus will be on the process by which individuals and organizations obtain, improve, and retain the skills, knowledge, tools, equipment and other resources needed to do their jobs competently or to a greater capacity. What can the industry and ICOLD do to promote capacity building in the Dam Safety field?

Workshop 2 – Environmental Adaption of Dams

Swedish hydropower is going to be modernized through a 20-year national plan, in order to achieve the greatest possible benefit for both the environment and national access to electricity. The national plan will ensure that > 2000 hydropower plants and several dams in Sweden follows the modern environmental legislation such as the EU Water Framework Directive. This process will be a concern for > 2000 HPP and several large dams to implement environmental mitigation measures on facilities and their operation with maintained dam safety.

The workshop targets are:

1. Give dam engineers a brief lecture on the most common and state-of-the-art environmental mitigation measures on large dams
2. Highlight challenges and opportunities in environmental adaption projects on dams – when is the risk/cost of the measure too high to accept?
3. Inspire dam engineers to find synergies in future potentially combined projects for increased dam safety and environmental relicensing.

The target group is dam engineers from all stakeholders (consultants, contractors, dam owners, authorities) interested in interdisciplinary problem-solving.

Workshop 3 – Strategies and Adaption to a Changing Climate

Technical session and a panel discussion to share experience and practice that encompass challenges in water supply, floods and mountain slope hazards relevant for dams.

- Resilience through operation
- Resilience through design
- Strategies, guidelines and regulation

Workshop 4 – Operational Safety of Dams and Reservoirs

The main objectives of the workshop is to provide a broad overview of the systems approach and simulations techniques for analysis of operational safety of dams and reservoirs. As well as to summarize the techniques available and outline emerging technologies which could be employed to further development of the methods and technology.

Workshop 5 – Defect Detection in Embankment Dams

In a Swedish joint research project facilitated by the energy company Vattenfall an experimental embankment dam was constructed at the Vattenfall R&D laboratories in Älvkarleby, Sweden. The dam was designed and constructed according to the Swedish dam safety guidelines but with six built-in defects. The defects represents a type that eventually could evolve and induce a dam breach and are sized to be realistic, while still large enough to be realistically detected in blind-tests by suitable geophysical methods.

Presentations of the dam infrastructure and result from the blind-test and use of different monitoring & surveillance methods (pre-modelling, measurements & technology, data presentation, evaluation/post-modelling) will be given during the workshop.

Workshop 6 – Rock Engineering Issues

Rock engineering issues are constantly present for dams e.g. for foundations, abutments and spillways. The problems arising with ageing dams are particularly interesting when talking about long term functionality of grout curtains, control of up-lift pressure under dams, reinforcement bars & cables and erosion in rock spillways. The awareness of these problems are arising in the industry and would benefit from a workshop on this topic.

Workshop 7 – Tailings Management

The tragic and catastrophic dam failure at Vale's Corrego de Feijao mine complex in Brumandinho was the start of an intense work with dam safety within the mining industry. Investors within the mining industry formed the Investors Mining and Safety Initiative with the aim to create transparency in tailings management and to raise the bar for dam safety.

The International Council on Mining and Metals (ICMM), the United Nations Environment Program (UNEP) and the Principles for Responsible Investment (PRI) co-convened the Global Tailings Review to establish an international standard for the safer management of tailings storage facilities. The 5th of August 2020 The Global Industry Standard on Tailings Management was released.

This workshop will focus on the implementation of the standard, to present and discuss the effect of the standard from different perspectives: The WS is open for all involved in the management of tailings.

Short Course 1 – Concrete Dam Modelling

The course will provide general and practical recommendations and guidelines on how and when finite element analyses may be used to assess the structural behavior or safety of concrete dams. This includes modeling aspects, material behavior, degradation and damages, modeling strategies, etc. It also includes recommendations for review of numerical models and results. The methodology given in this report is defined in general terms and is thereby independent on the choice of FE software.

Short Course 2 – New ICOLD Bulletin on Tailings Dam Safety

Vast changes and advances in the awareness of tailings dam safety and the professional practices to support safe design, operation and closure of tailings facilities has evolved since the ICOLD Bulletin 106 was published in 1996. The short course on the new Bulletin will give guidance on key aspects related to good design and good governance of tailings facilities. The ambition is to be a valuable guide for designers of tailings facilities, as well as operators, managers, and regulatory personnel.

Short Course 3 – Static Liquefaction

Much focus is directed towards the phenomena "static liquefaction" (undrained instability) when assessing stability of tailings dams. This is a consequence of major recent tailings dam failures. Why does this happen? Are we doing something wrong when taking the phenomena into consideration? How does neighboring disciplines confronted with similar material behavior deal with undrained instabilities? Lectures on the topic and questions related to static liquefaction will be in focus for the short course.

TECHNICAL TOURS

ICOLD 2023 participants will be able to select from full-day and half-day technical tours on Wednesday, June 14. The tours will take you to hydropower dams, shiplocks and canals in the region. The half-day tours will allow participants to attend a half day of technical papers during Day 2 of the Symposium. Additional fees apply. Visit the ICOLD 2023 website for a full list and description of the tours available.

PRE- AND POST-MEETING STUDY TOURS

Participants are encouraged to extend their stay in Sweden by taking part of the pre- or post-conference study tours. Planned tours are:

Älvkarleby tour, pre-conference

The trip to Älvkarleby is a 2-day study tour that will take place before the conference. The tour will start of in Stockholm, from which we will travel with bus to Älvkarleby. There we will get a tour of both the Älvkarleby dam as well as visit the laboratory of Vattenfall Research and Development.

The laboratory conducts several research works in cooperation with, among others, several universities. One of these is an experimental embankment dam, where they built a physical model with designed faults. The built-in faults give the researchers a possibility to study several things, including seismic investigations and other



measurements to detect an emerging defect.

On the way to Gothenburg we will stop along Göta Kanal as we drive across the country.

Workshop 5, Defect Detection in Embankment Dams will focus on the experimental dam in Älvkarleby and the evaluated results from the blind test. The pre-conference tour will give the opportunity for participants to see the dam before the workshop.

Northern Sweden- Hydropower dams, pre-conference

This study tour is a 4-day trip that takes place before the conference and includes a visit to several of the largest hydropower dams along the Lule River in Northern Sweden. Lule River is the second largest river in Sweden by average discharge, flowing from the northwestern border of Sweden to its outlet in the Bothnian Bay in Luleå City. Several hydropower dams such as Porjus and Suorva are planned to be visited together with their dam owner Vattenfall.

In addition to having many large hydropower dams, the Norrland region in which Lule River is located is known for its beautiful landscapes and rich cultural heritage.



The study tour will include visits to the mountainous landscapes with a view over Sarek National Park, museum Ájtte which is a gateway to the indigenous Sámi culture, and Kiruna city which is known for moving its entire city for the expansion of its mine. The study tour which will also allow an extraordinary experience of the midnight sun, a natural phenomenon only seen in the Arctic or Antarctic regions.

Northern Sweden- tailing dams, pre-conference

This trip takes its start at the big iron ore mines in northern Sweden. We will be given a chance to make a mine visit, follow the process through different processing plants and eventually see how the ore is shipped to the port of Narvik in Norway. The LKAB company have several mines and tailings dams in this area.



This is in the very north of Sweden so you can expect to see the midnight sun and potentially the odd reindeer (although they usually are up in the mountains this time of year).

Norway-Sweden tour, post-conference

The trip to Norway and Sweden is a 5-day study tour that will take place after the conference. We will start off by going to Norway by bus and visit both modern and historical hydropower plants as well as spending some time in Oslo. After two days in Norway, we will travel back to the



Swedish mountainous regions and visit the highest dam in Sweden, a rock-fill dam called Trängslet. The dam is currently

under re-construction and being retrofitted with new bottom outlet. There we will get the opportunity to see the work under construction. We will stay one night in Sälen which is a resort popular for skiing during wintertime and hiking during summer. On our way back to Gothenburg we will have several interesting stops including Höljes hydropower dam and the recently constructed flood protection dams and levees in Arvika.

Iceland tour, post-conference

The study tour to Iceland is a 4-day trip, arranged in collaboration with the Icelandic Committee on Large Dams, that take place after the conference. The study tour will start with a flight to Reykjavik. During the first day we will explore the capital of Iceland and visit the famous Hallgrímskirkja. The next days we will visit several hydropower plants owned by Landsvirkjun. Our visits will include Kárahnjúkar dam, the largest dam in Iceland, located in the east highlands with a vast desert wilderness. The hydropower plant, with a capacity of 690 MW, started operating



in 2009. We will also visit the buttress dam Ljósafoss, one of the oldest dams in Iceland, taken into operation 1937.

As well as seeing several dams we will also experience spectacular nature with magnificent views, as we drive by volcanos, stop by waterfalls and the beautiful mountains. We will drive through the famous natural national park of Thingvellir, a World Heritage Site since 2004. This is where the first parliament, called Althing, was held in Iceland in 930. The study tour will also allow an extraordinary experience of the midnight sun, a natural phenomenon only seen in the Arctic or Antarctic regions.

YOUNG PROFESSIONALS



ICOLD 2023 will offer a unique learning opportunity for individuals from around the world who are in the early stages of their careers. As well as specific events and initiatives targeted at these delegates, the ICOLD 2023 event integrates young professionals into all aspects of the program.

Young professionals are especially encouraged to attend ICOLD Technical Committee meetings and workshops, in addition to the Symposium and other events. Attendance will provide a unique opportunity to engage with technical subject matter experts from around the world and participate in the development of leading practices.

The Young Professional program will include:

- **ICOLD Young Professionals Forum**
- **Networking event for young professionals**
- **Young professional paper award**
- **Young professional poster award**
- **Sponsorship categories to support young professionals**
- **Mentorship opportunities**
- **Information booth in Exhibition Hall**

Companies and ICOLD National Committees will benefit by having young professionals attend this international event, where they can establish contacts with technical leaders and organizations at the forefront of dam engineering. This exposure will enable them to take the lessons learned back to their home organizations to improve projects and practice.

Note: for the purposes of registration delegates are to be 35 years of age or under as of the June 10, 2023. However, participation in the ICOLD Young Engineers Forum, and their activities, 40 years of age and under.

THINGS TO DO IN GOTHENBURG/ACCOMPANYING PERSONS PROGRAM

Gothenburg is an old harbor city located on the Swedish west coast. Founded almost 400 years ago the city blends a distinct feeling of charm with the pulse of modern urban life. In less than 30 minutes from the downtown area you'll be on a ferry to explore the tranquil archipelago. The city is filled with flourishing gardens, historic sites and buildings, beautiful churches and magnificent museums, and the tram rattled streets are lined with pleasant cafés and restaurants.

Take the opportunity in conjunction with ICOLD 2023 to explore Gothenburg.

Gothenburg is an international city with a lot of green parks, interesting architecture and historical sites. The ICOLD 2023 accompanying persons program will include activities for all interests: art, history, cycling, shopping and more, both in Gothenburg and in the region.



- On the Gothenburg Tourist Centre website you can find out more about the city and what to do. Here are some highlights:
- You can get out to the archipelago of Gothenburg and its craggy coast and picturesque fishing villages in less than an hour. Spend a day in the archipelago of Gothenburg.
- Classical tour with the sightseeing boat Paddan along the canals of Gothenburg. Or sightseeing with a Hop on – Hop off bus in Gothenburg.
- Gothenburg is the hometown for the car manufacturer Volvo. Take the opportunity to visit the Volvo museum and learn more about its heritage.
- Experience Liseberg! At the greatest amusement park in Scandinavia, lots of things are pretend, but the experiences are real. You'll find everything from dizzying rides to music and dance,
- Looking for an easy and eco-friendly way to explore the city? A guide to some of Gothenburg's bike rentals is found on page 18.

GENERAL INFORMATION

Visa Letter Enquiry

All participants who need a Visa Confirmation Letter are requested fill out the needed information in the digital form (TBA in October). Please note that visa application letter will be sent only after completed and fully paid registration.

Language

The official language of the conference is English.

Currency

The official currency is Swedish Krona (SEK).
USD 1 = SEK 10,8 (September 2022)
EUR 1 = SEK 10,7 (September 2022)

Conference Venue

Svenska Mässan, The Swedish Exhibition & Congress Center
www.svenskamassan.se

Closest tram/bus stop:

Korsvägen

Conference Secretariat

Sweden Meetx – icold2023@meetx.se

Wifi

There is free wifi in the conference venue.

Gothenburg

To make the most out of your visit to Gothenburg, the website www.goteborg.com

Information about restaurants and bookings at the venue and hotel

For information about restaurants at the venue, Gothia Towers restaurants and table reservations please visit www.gothiatowers.com

During the conference days all ICOLD delegates has a special price on beer/wine at the hotel lobby café and bar Twentyfourseven, please show your name badge to get the happy hour price <https://en.gothiatowers.com/eat/twentyfourseven/>

Exhibition

The Exhibition will take place in Hall D and E. The conference participants have automatically access to the exhibition.

Exhibition opening hours is during conference hours.

Onsite Registration

The Conference Registration desk is located in entrance number 8 at Svenska Mässan. You do not need to register for the exhibition

as the Conference badge gives you full access to it. Registration opening hours: TBA

Badges

To collect your badge onsite you need to bring the email confirmation (electronically in the phone works fine) or the text message that has been sent to you in advance, containing the bar code that you will be scanning in the self-service desks in the registration area. Delegate badges must be worn at all times to gain access to the conference sessions, exhibition and social events. Please note that we cannot replace lost badges.

Cloakroom

There are cloakroom facilities in the registration area. The organisers cannot be held responsible for damage to or loss of their personal property howsoever caused. Cloakroom opening hours: TBA

Currency & ATM Machine

The currency in Sweden is the Swedish Krona (kr) / SEK. The venue has an ATM Machine located by the main entrance number 5. Some places do not accept cash, credit card is the most common way to pay in Sweden

First Aid

There is a paramedic in the venue. In case of medical need, please come to the onsite registration desk or go to the Exhibitor Service Desk and we will help you. If medical emergency please call 112.

No smoking policy

According to Swedish law, smoking is prohibited inside any building, venue, hotels, busses, etc. Smoking is only allowed at open-air zones.

Lost-and-Found

Lost-and-Found will be collected in the registration desk.

Insurance

The Organisers cannot be held responsible for accidents to participants or for damage to or loss of their personal property howsoever caused.

TRAVEL INFORMATION

Infrastructure

Gothenburg has excellent connections via the second-largest airport in Sweden, the city's main railway station and several motorways make Gothenburg easily accessible. The venue is located only 20 minutes by bus from the airport that stops outside the venue. With a very modern and highly efficient local transportation network, transport in the city is quick and easy. Read more about how to get to Gothenburg here www.goteborg.com

Landvetter International Airport

For information about the airport, please visit www.swedavia.com

Airport buses – Flygbussarna

It takes 20 minutes to travel between the airport called Landvetter and the venue Svenska Mässan, the bus stop is called "Korsvägen/Svenska Mässan" and is located right outside the entrance of the venue.

Airport Taxi

Costs approximately SEK 400 to/from Landvetter Airport. Ask for a fixed price.

The driver should have a taxi ID card clearly displayed in the vehicle. Service is included in the taximeter price. Avoid unlicensed taxis.

We recommend: Taxi Göteborg: +46 (0) 31 650 000 or Taxi Kurir: +46 (0) 31 27 27 27

Train

SJ Swedish railways: www.sj.se

MTR Express: www.mtrexpress.se

When in Gothenburg

In Gothenburg we walk! The venue is located right in the city center, all hotels and social venues are located by walking distance from

each other – walk and explore the city, use the public transportations or the city bikes instead of taking taxis.

Local Transportation

The Swedish Exhibition Center or "Svenska Mässan" is located on Mässans gata.

The closest tram stop is called "Korsvägen".

Just outside the station by the square "Drottningtorget" you will find a tram stop called "Centralstationen". Take tram No. 2 or 4 to tram stop "Korsvägen".

For travel information and travel planner download the app "To Go" or visit the website: www.vasttrafik.se

You can buy tickets in most convenience stores such as Pressbyrå, 7-eleven etc. or pay with credit card on the trams (not on the bus). No cash are accepted.

Göteborg City Card

Göteborg City Card gives you free admission to lots of entertainment, sights, excursion, Liseberg amusement park (opposite the conference venue) and many museums. Parking and travel with trams, buses and boats are included. You'll also get shopping booklets with discounts in selected stores. Maximise your stay in Gothenburg. The card is valid for 24, 48 or 72 h.

Bike rental: Styr & Ställ

Gothenburg is a bike friendly city. Throughout the city you will find bike stands with rental bikes. For only a small amount you can rent a bicycle as often as you wish.

More information: <https://styrochstall.se/en/>



Landvetter photo: Jospia Kesic. Styr&Ställ photo: Beatrice Törnros, Tram photo: Simon Paulin

SUSTAINABILITY

As an organiser, ICOLD ANNUAL MEETING 2023 is working hard when planning the conference to reduce the impact on the environment and climate. However, a conference of this size always affects the environment due to the amount of people participating in the conference e.g. the increased travel, food and waste et cetera. This means that we encourage our partners to act in a sustainable way.

More information on the website:
<https://icold-cigb2023.se/sustainability/>



PRELIMINARY PROGRAM AT A GLANCE

Day	General Program	Technical Exhibition	Social Program	Workshops and Courses
June 7-9	• Pre Conference Tours			
Friday June 9	• Meeting of ICOLD Board			
Saturday June 10	• Meeting of ICOLD Board, morning + early afternoon • Meeting of ICOLD Board and Chairpersons Tech. Com, late afternoon			All day
Sunday June 11	• Techn. Com. WS, morning + afternoon • Regional Clubs, late afternoon • YPF, late afternoon	Opening, afternoon	Welcome Reception	
Monday June 12	• Meeting of Tech. Committees • Francophone meeting, late afternoon	All day		
Tuesday June 13	• Symposium	All day	Cultural Evening	
Wednesday June 14	• Technical Excursions • Symposium or Workshops	Half day	YPF	Half day
Thursday June 15	• General Assembly • Workshops		Farewell Dinner	All day
Friday June 16-20	• Post Conference Tours			

EXHIBITION AND SPONSORS

The conference offers unique sponsorship opportunities for your company and your brand as it provides a great international exposure at this annual event. This time in Sweden!

We believe this possibility to participate and cooperate in an international event of this magnitude is something that would be of benefit to you as a company but also it will further the industry and help improving our work and efforts as e.g. dam owners, service providers, suppliers or regulators.

As a sponsor you can get a good exposure of your company's services and also contribute to the arrangement in many different ways. As an exhibitor you will get the opportunity to showcase your products or services at an event that draws a big international attention.

In the sponsor and exhibition brochure, found on the website, we provide detailed information on how to become a sponsor and exhibitor for ICOLD 2023. First come, first served!

SPONSORS Confirmed by 4th October 2022

PLATINUM



GOLD



SILVER



BRONZE



