



Eighth International Conference and Exhibition on
**Water Resources and Renewable Energy
Development in Asia**

Shangri-La Hotel, Kuala Lumpur, Malaysia ~ 14 to 16 March 2023

Organized by:

THE INTERNATIONAL JOURNAL ON
**HYDROPOWER
& DAMS**

in collaboration with:



Supporting Organizations include:



For updates and registration, visit: www.hydropower-dams.com/asia-2023



MISSION OF ASIA 2023

As with the previous conferences in this series, which took place in Bangkok, Danang, Kuching, Chiang Mai, Colombo, Vientiane and Danang (again), the emphasis will be on helping to turn renewable energy and water resources development policies into practice. By bringing together a multidisciplinary group of international experts, to focus on issues of specific relevance to Asia, we aim to stimulate new partnerships, and produce concrete outcomes from the sessions and workshops. All those engaged in promoting, planning, financing, developing, constructing, supplying or studying water resources and renewable energy schemes in Asia should attend.

WELCOME TO MALAYSIA

The Aqua-Media International team, with the support of the Malaysian Government, the Malaysian Committee on Large Dams, and the State Power utilities, welcomes the global water and energy community to the vibrant, multicultural city of Kuala Lumpur, Malaysia.

Peninsular Malaysia, as well as Sarawak and Sabah, have broad experience of large and small hydropower development and multipurpose dams. Study tours will visit some of the large cascade developments in Peninsular Malaysia. Hydropower supplies about 20 per cent of Malaysia's approximately 34 GW of installed generating capacity, with hydro supplying more than 20 TWh/year. The Government of Malaysia is strongly committed to

increasing the share of renewable energy in the country's generation mix, with a target to add 4 GW of renewables across the thirteen states by 2030.

The country has about 104 large dams. The most recently completed in Peninsular Malaysia are the Puah dam for the 250 MW Hulu Terengganu hydro plant (completed in 2015), and Susu RCC dam for the 372 MW Ulu Jelai hydro plant (commissioned in 2016) The latest large scheme going ahead in Sarawak is the 188 m-high Baleh CFRD, following the completion of Bakun and Murum. Some of the most important schemes in Peninsular will be visited during post-Conference study tours.

KUALA LUMPUR

The host city is easily accessible from all parts of the world: Kuala Lumpur International Airport is one of the leading aviation hubs of Asia, with direct flights operating there by more than 70 airlines.

While being surrounded by lush rain forests not too far away, Kuala Lumpur, the capital city and cultural, financial and economic centre of Malaysia, is one of the fastest growing metropolitan regions of Southeast Asia. The city skyline is dominated by the gleaming Petronas twin towers, and numerous state-of-the-art office blocks and hotels. But some traditional Malay buildings and colonial-style architecture can also be found, as well as the colourful markets in the Bukit Bintang and Chinatown areas.

The Shangri-La hotel, in the heart of the city, will provide a comfortable and elegant setting for the conference.



Monday 13 March	Tuesday 14 March	Wednesday 15 March	Thursday 16 March	Friday 17 March
<p>From 09.00 hrs:</p> <p>Conference Registration opens Exhibition set-up for custom stands only</p> <p>09.00 hrs: Workshops on: Designing a small hydro plant Hydro finance MYCOLD training course (to be confirmed)</p> <p>11.00 hrs: Excursion departs City tour with lunch</p> <p>14.00 hrs Access to stands for all exhibitors</p> <p>19.00 hrs: Chairpersons' Meeting followed by 19.30 hrs: Speakers' Briefing at the Shangri-La Hotel</p>	<p>09.00 hrs:</p> <p><i>Opening Plenary Session:</i> Opening speeches Welcome to ASIA 2023 and ICDSME 2023</p> <p><i>Coffee</i></p> <p><i>Plenary Session:</i> Keynote Addresses</p> <p><i>Lunch</i></p> <p><i>Parallel Sessions:</i> 1 - Changes in project finance 2 - Environment 3 - Hydro planning tools</p> <p><i>Coffee</i></p> <p><i>Parallel Sessions:</i> 4 - Legal and contractual aspects 5 - Social issues 6 -River basin management</p>	<p>09.00 hrs:</p> <p><i>Parallel Sessions:</i> 7 - Development opportunities 8 - Civil design and construction - I 9 - IEA session</p> <p><i>Coffee</i></p> <p><i>Parallel Sessions:</i> 10 - O&M and refurbishment 11- Civil design and construction - II 12 - Climate</p> <p><i>Lunch</i></p> <p><i>Parallel Sessions:</i> 13 - Hydropower equipment 14 - Tunnels and underground works 15 - Dam safety - 1</p> <p><i>Coffee</i></p> <p><i>Parallel Sessions:</i> 16- New approaches to RE systems 17 - Sedimentation management 18- Dam safety - 2</p>	<p>09.00 hrs:</p> <p><i>Parallel Sessions:</i> 19 - Hazards and challenging sites 20 - Small hydro 21 - Cross-border collaboration</p> <p><i>Coffee</i></p> <p>22 - Water resources management 23 - Capacity building</p> <p><i>Close of ASIA 2023</i></p> <p><i>Lunch</i></p> <p>MYCOLD ICDSME 2023 Opening sessions</p> <p><i>Coffee</i></p> <p><i>ICDSME parallel sessions (topics to be announced)</i></p>	<p>09.00 hrs:</p> <p><i>ICDSME parallel sessions continue (topics to be announced)</i></p> <p><i>Coffee</i></p> <p><i>ICDSME parallel sessions continue (topics to be announced)</i></p> <p><i>Lunch</i></p> <p><i>ICDSME parallel sessions continue</i></p> <p><i>Coffee</i></p> <p><i>ICDSME Closing session</i></p>
<p>20.00 hrs: Speakers' and Chairpersons' Reception, Shang Restaurant, Shangri-La Hotel</p>	<p>19.30 hrs: Welcome Reception Garden and Terrace, Shangri-La Hotel</p>	<p>17.30 hrs: Networking party with refreshments in the Exhibition Halls (Evening free for private parties)</p>	<p>19.30 hrs: ASIA 2023 Gala Dinner</p>	

Second ICDSME hosted by MYCOLD joins ASIA 2023

Aqua-Media is delighted that the Malaysian National Committee on Large Dams has decided to host its second International Conference on Dam Safety Management and Engineering following ASIA 2023. There will be a joint Opening Ceremony for both events on 14 March, contributions from MYCOLD to various ASIA 2023 sessions, and then the ICDSME Conference will take place on the afternoon of 16 March and on the 17 March. ASIA 2023 Exhibitors will have the opportunity to book with MYCOLD to stay on for an extra day in the Exhibition Hall.

The first very successful Conference in this series took place in Penang, Malaysia, in November 2019 (see *H&D* Issue 6, 2019). The event underlined the major focus on dam safety in Malaysia, and progress that has been made in capacity building and the establishment of national guidelines. The book, MyDAMS, launched at the time by MYCOLD, is a 'live document' regularly updated, which aims to bring dam safety risks to the lowest possible level.

ICOLD President Michael Rogers took part in the event, as well as high level experts from Peninsular Malaysia and Sarawak, Canada, Australia, USA, Korea and France.

Details of the programme for the ICDSME 2023 conference and associated training courses will be announced shortly.

The photo below shows Dato Dr Xavier Jakakuma, Malaysia's Minister of Water, Land and Natural Resources opening the first conference in 2019, prior to giving a keynote address. On the right is Prof Datin Lariyah Mohd Sdek, Chair of MYCOLD.



PRE-CONFERENCE EVENTS

KL City and Sightseeing Tour, including lunch

Monday 13 March

The half-day, pre-conference excursion offers the perfect opportunity to become oriented with Kuala Lumpur and to visit some of the key sights in the heart of the city.

The tour will set off from the Shangri-La Hotel in the late morning and take delegates by mini coach around the city, to view some of KL's historical and culturally important landmarks, including Merdeka Square, the National Monument, the splendid railway station built in 1910 (one of the city's original colonial structures, see below) and the National Mosque.



In contrast with the historical landmarks, there will be an opportunity to visit the Petronas Towers and walk the bridge that adjoins the two towers. The tour includes lunch at the revolving restaurant at the Kuala Lumpur communications tower. A tour guide will be available to provide information throughout the day, and to answer questions at each location. Return to the Shangri-La will be in the late afternoon.

SMALL HYDRO WORKSHOP

Monday 13 March Full day

Shangri-La hotel

DESIGN A SMALL HYDRO PLANT IN A DAY

*Led by Prof David Williams and Gordon Black,
Learning Hydro, UK*

Many factors are considered in the design and construction of the optimum hydropower project.

All parts of a scheme are interrelated and interdependent. Change one component and all others will be affected. This workshop, following successful ones held in Vientiane, Montreux, Marrakech, Seville, Danang, Gdansk, Namibia and Porto, is aimed at people who are, or will be, involved in hydropower development as part of rural electrification programmes. It will cover run-of-river hydro projects in the 'pico' to 'mini' range (1 kW to 1 MW capacity).

As this is a diverse form of energy production, there are always areas that are unfamiliar to people, despite many individual specialisms. This workshop aims to fill in the gaps, and help people to gain a good basic grounding in the topic. All relevant aspects will be covered, from rainfall to energy evaluation, including:

- Analysis of scheme location and definition of potential catchments
- Turning rainfall into an available flow range from a catchment and development of a flow duration curve
- Power and energy generated calculation
- Intake structures, channel and/or

pipeline routes and sizing • Powerhouse design and equipment
• Turbine selection • Generator, controls and switchgear options and • Grids, national and local.

This will be a 'hands-on' workshop, which will involve the participants, working in groups, to develop an actual hydropower project during the day. After presentations on the individual scheme aspects, the groups will put together the components of the project. This will follow through to the completed design.



CONFERENCE SESSIONS

Tuesday 14 March ~ Morning

Opening Plenary Session

■ Welcome to ASIA 2023 and introduction to the programme – *Alison Bartle, Director, Aqua-Media International Ltd, UK*

■ **Opening addresses by:**

- Michel Lino, President, ICOLD
- Datin Prof Ir Dr Lariyah Binti Mohd Sidek, President, MYCOLD
- Officers of TNB/Uniten
- Klaus Jorde, International Energy Agency
- Dr Jia Jinsheng, Hon President, ICOLD, China

Coffee break and official opening of the ASIA 2023 Exhibition

Plenary Session Part 2 – Keynote addresses will include:

- World Bank decarbonization agenda in East Asia Pacific and role of hydropower in future energy systems – *Nicolas Sans, Lead Energy Specialist - Hydropower, East Asia and Pacific, The World Bank*
- Observations made from the behaviour of large dams during recent earthquakes in Turkey and China and the need for the seismic safety evaluation of existing dams – *Dr Martin Wieland, AFRY, Switzerland, and Chairman of ICOLD's Technical Committee on Seismic Aspects of Dam Design*
- World Bank strategy and lessons learned for dam safety – *Satoru Ueda, Lead Dam Specialist, The World Bank*
- Enhancing dam safety through contractual strategy – *Michel Lino, President, International Commission on Large Dams*

Tuesday 14 March ~ Afternoon

Session 1 - Risk reward profile for hydro development: The need for 'patient financing'

Chair *Nicolas J-M. Sans, The World Bank*

The risk-return profile and long gestation period of large hydropower projects mean that 'patient financing' is necessary for these projects to be developed and constructed. The session will begin with a keynote presentation on the relationship between risk and public/private sector finance in large hydropower projects, and proceed to a panel discussion which expands on these themes.

- Keynote talk: Hydropower risk/reward profile - A long project lifetime for a large hydro power project: A financier's perspective – *N. Sans, The World Bank, Singapore; Dr J. Plummer Braeckman, University of Cambridge, UK*

Panelists will include: *Patrice Caporossi, The World Bank; Andrew Noble, WSP Australia (Pty) Ltd; and two others to be confirmed shortly.*

Session 2 - Environmental aspects of hydro and dam development

Chair: *Dr Stephen Sparkes, Statkraft, Norway*

- Assessment on effectiveness of environmental management framework for the Baleh hydroelectric project, Sarawak – *Deebak Subramani, Law Ing Nguong and Wong Tat King, Sarawak Energy Berhad, Malaysia*
- Rural community-based water supply treatment by the Theun-Hinboun Hydropower Power Company in downstream relocation villages, Laos – *Singphet Keothongnin and J. Millgate, Theun-Hinboun Power Company (THPC), Lao PDR*
- Sustainable hydro development: Case study of Hulu Terengganu – *Shahril Mod Husin, Alyaa Filza Effendi, Mohd Shafiq Zakeyuddin, Ayuni Shamsul Bahari, Aisah Md Shukor and Shukor Md Nor, UNITEN/MYCOLD, Malaysia*
- The 102 MW Gulpur hydro scheme: Thriving for sustainable development – *Ki Taek Lee, N. Ullah, A. Islam, B.H. Shakir and M. Ud Din Ashraf, Mira Power Ltd, Pakistan*
- Hydropower and fish: recurring issues and how to solve them – *Toby Coe, Fishtek, UK*
- The RiverScreener project: Proof and optimization of a new river cleaning concept – *Y. Fuchs, A. Hartlieb and R. Muhr, Technical University of Munich, Germany*

Session 3 - Innovative technology and planning tools

Chair: *Dr Kamal Laksiri, CEB, Sri Lanka*

- The use of innovative techniques in leakage detection to manage the risk and investment profile of a large water company with a large portfolio of dams – *P. Rigby and I. Scholefield, United Utilities, UK; and A. Hughes, Dams and Reservoirs Ltd, UK*

- The inspection of headrace tunnels with unmanned aerial vehicles – *F. Espada Moreno, Hovering Solutions, Spain; A. Vaquero Mateos and C. Mayoral Ranedo, Iberdrola, Spain*
- Application of digital technologies to civil engineering related to hydropower – *A. Akihiro, T. Yoshihide, H. Yusaku and S. Kosuke, Kansai Electric Power Company, Japan*
- Expansion of the system operations model for the Mahaweli river basin, Sri Lanka – *B. Dibrani, Tractebel Engineering GmbH, Germany*
- Screening of potential hydropower sites in Philippines using GIS and global data resources – *P. Thapa, P. Schäfer and S. Palt, Fichtner GmbH & Co. KG, Germany*

Session 4 - Contractual and legal issues

Chair: *M. Beraud, Tractebel Engie, France*

- After the hydropower feasibility study: The technical steps to financial close – *A. Noble, WSP Australia Pty Limited, Australia*
- Legal, contractual and insurance issues for the hydropower development in Nepal – *G.P. Kayastha, Chilime Engineering and Services Company, Nepal; S.P. Shrestha, Laxmi Shrestha and Co Pvt Ltd, Nepal*
- Improving construction time and budget overrun risk management using Monte Carlo simulation – *F.P. Nagel, M. Wagner, and M. Beisler, ILF Consulting Engineers (Asia) Ltd, Thailand*
- Introduction to the guidance for the preparation of tender documents in the Emerald Book underground works: Managing time risk and cost – *M. Smith, Matrics Consult Ltd, Rep of Korea*
- Is the FIDIC Emerald Book (Ed. 2019) the best contract for hydropower and dam construction projects? – *S. Giraud, Plan J Consulting, France*

Session 5 - Social benefits of hydropower and dams

Chair: *Kate Lazarus, IFC*

- Dams, climate change and downstream populations – *C. Tortajada, University of Glasgow, UK*
- Synergies of the beneficiary, donar and technical assistant in a hydroelectric development project – *M. Boun Heng and T. Vincent, Artelia, France; A. Dubrac and Pham Duc Tung, Agence Française de Développement, France; Dao Trong Sàng, EVN, Vietnam*
- Renewable energy development, impact assessment and social challenges in Georgia – *S. Chichaghua, Enviso, Georgia; S. Dhillion, TOF and Enviro-DEV, Norway*
- Benefit sharing in hydropower projects of Nepal for economic transformation – *U. Khatiwada, NRN Infrastructure & Development Limited, Nepal*
- Benefit sharing: Enablers, framing mitigation, conflict resolution and development goals – *S. Dhillion, Enviro-Dev, Norway*

Session 6 - River basin management and cascade developments

Chair: *Prof Bogdan Popa, University Politehnica of Bucharest, Romania*

- Better involvement of stakeholders in basin management plans – *E. Cifres, e-Water Consultants, s.l., Spain*
- Joint and intelligent regulation of large-scale cascade reservoirs for integrated river basin management – *Huang Yan, Changjiang and Wang Xuemin, Changjiang Water Resources Commission, China; Yu Shan, Yi Lu and Wang QuanSen, Changjiang Survey, Planning, Design and Research Co. Ltd., China*
- Challenges of the development of independent hydropower projects as part of a cascade on the Arun river, Nepal – *S. Palt, M. Heider and P. Schäfer, Fichtner GmbH & Co. KG, Germany*
- Making five cascade hydro plants with reversible units operational as a cascade of PSPs – *B. Popa, University Politehnica of Bucharest, Romania; F. Popa, University Valahia of Iargoviste, Romania, and E. Tica, University Politehnica of Bucharest, Romania*

Wednesday 15 March ~ Morning

Session 7 - Development opportunities and challenges in Asian countries

Chair: *H.I. Aker, Dolsar Engineering, Turkey*

- IEA Global Outlook for Hydropower, with a focus on Asia – *T. Criswell, International Energy Agency, France*
- Dam and hydropower development: Current opportunities in Indonesia – *Dr Aries Firman, Indonesian Dam Safety Commission and INACOLD, Indonesia*
- The current status of hydropower/dams development in Vietnam – *Prof Nguyen Quoc Dung, Vice-Director of VNCOLD, Vietnam*
- Activities and prospects for hydro and dams in Lao PDR – *(Speaker to be confirmed, from the Ministry of Natural Resources and Environment)*
- The future outlook for hydro in Sri Lanka – *Dr K. Laksiri, CEB, Sri Lanka*

CONFERENCE SESSIONS

- Activities and development plans in Pakistan – Z. Majeed, WAPDA, Pakistan
- Development opportunities for hydropower plants in the Kurdistan region of Iraq – H.A. Hawramany, Consultant, Iraq

Session 8 - Civil engineering: Design and construction - I

Chair: Prof Xu Zeping, IWHR/CHINCOLD, China

- Construction challenges of a high CFRD dam for the Nam Ngum 3 hydro plant – X. Ducos, Q. Bercher, G. Oubry and F. Brousset, Artelia Eau & Environnement, France; K. Phet-Asa, Electricité du Laos, Lao PDR
- Design aspects of grid diaphragm walls under the circular buttress weir – M.M. Arslan, Dolsar Engineering Inc Co, Turkey
- Design and construction of large dams on deep alluvial foundations – W. Saleira, RCS Inc, Canada [to be confirmed or replaced]
- A discussion on the assessment of the Ituango cement-bentonite cutoff wall – C.R. Donnelly, Independent Consultant, Canada; E. Tiedge, Canada; D. Flores, Hatch Ltd., Canada; J. Arango, Empresas Publica de Medellin (EPM), Colombia

Session 9 - IEA activities and the EU initiative: Hydro4U, promoting small hydro development in Central Asia

Chair: Klaus Jorde, IEA Hydro

- The IEA Hydropower TCP Research Programme – K. Jorde and S. Bockenbauer, IEA Hydro
- The benefits and value of flood control and drought management from hydropower – A. Harby, B. Hansen, M. Carulli and D.M. Damazio, IEA Hydro
- Decision making in large catchments with many dams and owners/operators – (Speaker to be confirmed), China Yangtze Power Corporation, China
- The EU project Hydro4U: Supporting small hydro in Central Asia – M. Alapfy, Hydro4U Project Coordinator, and Technical University of Munich, Germany
- European innovations in Kyrgyzstan: Development of the At-Bashi small hydro project – B. Alapfy, M. Roth, H. Schwedhelm N. Rütger, Technical University of Munich, Germany; T. Siegfried, Hydrosolutions GmbH, Germany; I. Kopecki, SJE Ecohydraulic Engineering, Germany; D. Hayes, University of Natural Resources and Life Sciences, Austria; E. Karimov, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Uzbekistan; and R. Lopez, CARTIF Technology Centre, Spain

Session 10 - O&M and refurbishment

Chair: Laurent Mouvet, Hydro Operation International SA, Switzerland

- Contracting out rehabilitation of hydroelectric plant – J.H. Gummer, Hydro-Consult Pty Ltd, Australia
- Modernization of hydropower plants: A key task to achieve net zero goals – M. Schumann, Voith Hydro Holding GmbH & Co, Germany
- Major rehabilitation and upgrade of the Toktogul hydro plant in the Kyrgyz Republic: Approach, challenges and benefits – O. Gavasheli and H. Von Büren, Fichtner GmbH & Co. KG, Germany
- Challenges faced in the revival of the Singrauli small hydro plant after flooding – N. Pant and S. Shrivastava, NTPC Ltd, India
- Reducing the risk of operational issues due to entrained air using CFD analysis – L.L. de Rijk, F-P. Nagel and T. Frener, ILF Consulting Engineers (Asia) Ltd, Thailand
- Start-up assistance for a 66 MW hydro turbine – N. Péton, Baker Hughes, France; S. Drygin, Baker Hughes, United Arab Emirates; K. Wunnapun, Baker Hughes, Thailand; and Woo Kin Phong, Baker Hughes, Malaysia

Session 11 - Civil engineering: Design and construction - 2

Chair: Dr Quentin Shaw, ARQ Consulting Engineers Ltd, South Africa

- The use of PK Weirs to increase spillway capacities and for long barrages – M. Ho Ta Khanh, Independent Expert, Vietnam
- The design and construction of a new dam and hydro plant in Kurdistan, Iraq – H.A. Hawramany, Hydropower Consultant, Iraq
- Start-up of the Nam Lik 1 run-of-river scheme, Laos, in a challenging environment – E. Mine and N. Bourcier de Carbon, Tractebel, France; P. Phumchawsaun, GPSC, Thailand
- Geomembranes in pumped-storage schemes – G. Vaschetti, A. Sciero and M. Scarella, Carpi Tech, Switzerland; J. Cowland, Carpi Tech, USA

Session 12 - Climate change: Research and resilience, and flood management

Chair: Prof Kyung Taek Yum, Sungkyunkwan University, Korea

- Large dams for managing extreme hydrological events caused by climate change – A.K. Biswas, University of Glasgow, UK

- Cases of climate change adaptation and policies on water resources in Republic of Korea – Kyung Taek Yum, Graduate School of Water Resources, Sungkyunkwan University, Korea; Bong Sang kim, Korea Water Resources Corporation, Korea; Dong-Hoon Shin, Institute of Korea Water Resources Corporation, Korea
- The importance of financial initiatives as a catalyst to reduce reservoir methane emissions – L. Parlons Bentata and N. Rueda Vallejo, Bluemethane, UK
- On-site image-based flow measuring system for monitoring flood events – I. Hansen, SEBA Hydrometrie GmbH, Germany; R. Düster, S. Peña-Haro and B. Lüthi, Phototrack AG, Switzerland
- Flood evaluation and dam safety in a changing climate for Sg Perak hydro scheme – Prof. Lariyah Mohd Sidek, Hidayah Basri, Kok Kah Hoong and Mohd Ruzaimi Yalit, Universiti Tenaga Nasional, Malaysia; Sarbani Aujang Ahmedm Darul Hisham Saman, Azhar Mar Yunus and Noryusuhazriq Mohd Yusof, TNB Power Generation Sdn Bhd, Malaysia
- The importance of hydroelectric power generation in combatting climate change in the Malaysian context – C.R. Donnelly, Independent Consultant, Canada; S. Bohrn, S. McGeachie and J. Groeneveld, Hatch Ltd, Canada

Wednesday 15 March ~ Afternoon

Session 13 - Hydropower equipment

Chair: J. Gummer, Hydro-Consult Pty Ltd, Australia

- Case study of a low specific speed Kaplan in a high abrasive environment – S. Weissenberger and R. Peyreder, Andritz Hydro GmbH, Austria; C. Morper, Andritz Hydro GmbH, Germany
- Multiple compact units: Detailed analysis – P. Duflon, Andritz Hydro SAS, France
- Voith's StreamDiver® solution for decentralized low head hydropower plant operation – A. Mehta, PT Voith Hydro Indonesia; S. Reich, Voith Hydro Holding GmbH & Co, Germany
- Surface modification for protection against silt erosion of hydro turbine components – S. Sood and R. Sood, Industrial Processors and Metallizers (P) Ltd, India
- Challenges of implementing reliable and accurate non-intrusive ultrasonic flow measurement on penstocks at large-scale hydroelectric power plants – D. Funk, Flexim GmbH, Germany
- Advances in the design and construction of high head penstocks – G. Ichikawa and K. Karakoc, EnFlux Engineering Ltd, Canada

Session 14 - Tunnels and underground works

Chair: Dr D. Djarwadi, PT Banyu Biru Solusi Geoteknik, Indonesia

- Construction of Upper Kon Tum: a high-head plant in Vietnam with a long tunnel and an air cushion surge chamber – M. Ho Ta Khanh, Independent Expert, Vietnam; J-L. Giafferi, Expert Geologist, France; and Vo Thanh Trung, VSH, Vietnam
- Construction of the Nam Yang flood protection dyke for the Nam Theun 1 hydropower project – C. Trottmann and A. Sorgenfrei, AFRY, Switzerland
- How CFD enables innovative designs to benefit investors – F-P. Nagel, L.L. De Rijk and T. Frener, ILF Consulting Engineers (Asia) Ltd, Thailand; K-H. Nagel and M. Boskovic, Latin Swiss Hydro S.A.C., Peru
- Design of need-based lightweight concrete for cavity filling in underground caverns – S.K. Sharma, J. Bali, J.K. Thakur and B. Kathar, HCC Ltd, India
- Construction of the power waterway for the Nam Theun 1 hydropower project – A. Sorgenfrei, P. Nater and S. Martin, AFRY, Switzerland
- The application of several construction methods on dam projects in Asia – M. Gastager, Bauer Malaysia Sdn Bhd, Malaysia; M. Baltruschat and M. Adnan, Bauer Spezialtiefbau GmbH, Germany; A. Setiawan, Bauer Pratama Indonesia P.T., Indonesia; P. Yogeshwaran and B. Vidyaranya, Bauer Engineering India Pvt. Ltd., India

Session 15 - Dam safety - I

Chair: Michel Lino, President, ICOLD

- Dam safety management and challenges: Indian experience – D.K. Sharma, Himachal Pradesh Electricity Regulatory Commission, India and Vice President of ICOLD
- Improving project implementation for more sustainable dam safety – Dr Quentin Shaw, ARQ Consulting, South Africa
- Delivering end-to-end dam safety risk management to river basins in the face of climate change to improve community safety in Vietnam – P. Amos, Damwatch Engineering Ltd, New Zealand; Nguyen Canh Thai, Thuy Loi University, Vietnam; and N. Pondard, GNS Science, New Zealand
- Current dam safety management practice in Malaysia – A.M. Sabri, M. Rozman, M. Zakiyyah, S. Azaitulnora, M.K. Mohd Hazri, Z. Fitrawati, and E.M. Engku Ahmad Khalil Azhar, Department of Irrigation and Drainage, Malaysia
- Status of dam safety in the USA – D. Durkee, Gannett Fleming, USA

CONFERENCE SESSIONS

Session 16- New approaches to renewable energy systems

Chair: C.R. Donnelly, Independent Consultant, Canada

- Optimal design and joint operation of floating solar-hydro plant facilities – F. Welt, A. Damun, T. Olason, A. Stickler, A. McLean and C.R. Donnelly, Hatch, Canada; L. Zhao and H. Liu, Envision Digital, Singapore
- Techno-economic optimization of a floating solar hydropower hybrid plant using the Monte Carlo method – M. Fuentes Sifuentes, F-P Nagel, S. Dawyok and M. Wagner, ILF Consulting Engineers (Asia) Ltd, Thailand; J. Reinhardt, Reinhardt Huang GbR, Germany
- Battery energy storage systems in hydro powerplants: The perfect match for the future? – T. Eiper, J. Hell and S. Kadam, Andritz Hydro, Austria
- Extensive hydropower generation on flat rivers: new XFH technology significantly transcends the Betz law limit – O. Hoter-Ishay, Adcanin, Canada
- Current technology trends for pumped-storage hydropower plants including modernization strategies for increased flexibility – K. Krüger, Voith Hydro GmbH, Germany
- The development of pumped-storage projects in Thailand: A case study from EGAT – Thanaphon Mathuravech, Electricity Generating Authority of Thailand (EGAT)

Session 17 - Sedimentation management

Chair: Prof T. Sumi, University of Kyoto, Japan

- Reservoir sediment mitigation plan towards hydropower sustainability – A.Z. Abdul Razad and N. Aishah Abbas, TNB Research Sdn Bhd, Malaysia; Prof Ir Dr L. Mohd Sidek, UNITEN, Malaysia; Dr J.L. Alexander and M.R. Mohd Radzi, Tenaga Nasional Berhad, Malaysia
- Quantitative evaluation of the downstream geomorphological impacts of a large hydro peaking hydropower plant in the Irrawaddy river basin, Myanmar – C. Jourdain, G. De Linares, J-L. Rahuel, J-C. Carre and G. Prudent-Richard, Artelia Eau & Environnement, France
- Impact on reservoir sedimentation flushing and mean annual energy of Dasu (Stage-I), Patan and Thakot I with and without Diemer Basha dam project on Indus river – M. Amin, Z. Majeed and S. Munawar, WAPDA, Pakistan
- Sediment erosion research and development at Turbine testing laboratory, Nepal – H.P. Neopane and S. Chitrakar, Kathmandu University, Nepal

Session 18 - Dam safety - 2

Chair: Dr A.K. Hughes, Dams and Reservoirs, UK

- Safety of dams against earthquakes: Indonesian practice – Dr D. Djarwadi, PT Banyu Biru Solusi Geoteknik, Indonesia
- Development of 145-year and 10 000-year return period seismic hazard maps for the analysis and design of large dams in Peninsular Malaysia – M. Suhairil and P.A. Sari, University of Malaya, Malaysia; I. Othman and M.K. Shuib, UPUM Sdn Bhd Malaysia; M.R. Samsuri, TNB Power Generation Sdn Bhd, Malaysia; Hendriyawan, Institut Teknologi Bandung, Indonesia
- Dam safety enhancement at the Sungai Perak hydro stations, Malaysia – I. Siskos, Chongjiang Du and B. Dibrani, Tractebel Engineering GmbH, Germany; M.R.M Radzi, Tenaga Nasional Berhad, Malaysia
- Structural health monitoring of ageing dams – M. Tatin, R. Duhme and Thang Dao Ngoc, Socotec Monitoring, France
- Vertical gate design: Dam and powerplant safety in relation to flood management – D. Hassall, K. Koo and S. Sam, Norconsult, New Zealand

Thursday 16 March ~ Morning

Session 19 - Construction challenges and natural hazards

Co-Chairs: Prof J. Reynolds, Geo-Solutions Ltd, UK; and P. Pradhan, BPC, Nepal

- Keynote: The benefits of integrated geohazard assessment for the hydropower sector – J. Reynolds, Geo-Solutions Ltd, UK
- Obstacles to dam design in the Himalayas – B. Poudel and T.C. Bhatta, Vidhyut Utpadan Company Ltd, Nepal
- Alternatives for construction of complex tunnelling scheme at Dez dam for a new sediment flushing tunnel and the second underground powerhouse project – F. Dadfar, Riley Consultants Co, New Zealand
- Geological challenges encountered in the pressure tunnels at the Nam Ngum 3 and Nam Ngum 4 hydropower projects – J. Perello, Q. Bercher, G. Oubry and F. Brousset, Artelia Eau & Environnement, France

Session 20 - Small hydro

Chair: Gordon Black, Learning Hydro, UK

- Optimization and modernization of existing small hydro – J. Crewdson, Gilbert Gilkes & Gordon Ltd, UK
- Small hydropower units: Agents of change in northern areas of Pakistan – Y.A. Hamza, Regreenpak, Pakistan
- Expansion of renewable energy generation in Sri Lanka: What is the role of small hydropower? – N.A.K. Nanayakkara, Resus Energy PLC, Sri Lanka; Dr J. Plummer Braeckmann, University of Cambridge, UK
- Development of an innovative hydrokinetic turbine for inland waterways – B. Baumire and M. Cherian, DLZ, USA
- Performance evaluation of a pipe runner based on commissioning test results – M. Nakai, S. Nakamura, T. Tsukamoto, S. Yamato and K. Ono, Voith Fuji Hydro K.K., Japan
- Financial feasibility analysis and socioeconomic impact of the Lodagung micro powerplant in Blitar, East Java, Indonesia – E. Susilowati, A. Riyanto and G. Nugroha, Jasa Tirta Energi, Indonesia

Session 21 - Cross-border and regional developments

Chair: Jie Tang, The World Bank, Singapore

- Introductory talk from the Chairman
- A basin-wide sustainable hydropower development strategy for the Lower Mekong basin – Peeti Ngamprasom, Mekong River Commission, Lao PDR
- Designing a core river monitoring network for the Mekong river – S. Legrand and S. Rivet, CNR, France; Dr. So Nam and Peeti Ngamprasom, Mekong River Commission, Lao PDR
- New regulator in Nepal facilitating cross-border collaboration – D.B. Singh, Electricity Regulatory Commission, Nepal
(Additional presentation to be announced)

Session 22 - Water resources management

Chair: Enrique Cifres, e-Water Consultants s.l., Spain

- Competition for water resources: Hydropower and food security issues – S. Sparkes, Statkraft AS, Norway
- A situational analysis for implementing river basin planning in the case of the Aksu river basin, Uzbekistan – O. Anarbekov, U. Solieva and Z. Gafurov, International Water Management Institute, Uzbekistan; I. Akramov, Ministry of Water Resources, Uzbekistan
- Yeongjong Island Block Demonstration Plant construction plan for improving water efficiency – Kuk Heon Han, National Smart Water Grid Research Group, Republic of Korea; Kyung Taek Yum and Kapil Gnawali, Sungkyunkwan University, Republic of Korea; KukHeon Han, Smart Water Grid Research Group, Republic of Korea

Session 23 - Capacity building

Dr Arun Kumar, IIT Roorkee, India

- Technical transfer of operation and maintenance works for generating units on overseas hydropower project: A case study of San Roque power station in the Philippines – Y. Yamakawa, T. Nomura, H. Ueda, and K. Aguro, M. Kaneko, T. Onishi and H. Terasaki, Kansai Electric Power Company, Japan
- Training opportunities at IIT, Roorkee – Dr A. Kumar, IIT, Roorkee, India
Additional papers are being arranged, and the presentations will be followed by a panel discussion among young engineers and students, and those with experience in training and capacity building.

ASIA 2023 Closing Plenary Session

- Session outcomes and recommendations and conclusion of ASIA 2023
- Welcome to AFRICA 2023, Uganda and HYDRO 2023, Scotland

LUNCH BREAK

15.30 hrs: Opening of the ICDSME Conference and Exhibition, Organized by MYCOLD

For details visit: icdsme2023@mycold.com.my

SOCIAL PROGRAMME

As always, the ASIA 2023 conference will offer a full social programme to enable delegates and accompanying persons to reunite with international friends and colleagues, and to make new contacts, in a relaxing atmosphere. This will be a chance to enjoy some specialities of Malaysian cuisine, as well as some musical and cultural entertainment.

Chairpersons and speakers will enjoy dinner on 13 March (after their briefing about the conference sessions), at the elegant Shang Palace Chinese restaurant within the Shangri-La hotel.



The welcome reception will take place at the tropical terrace area on the ground floor of the hotel.

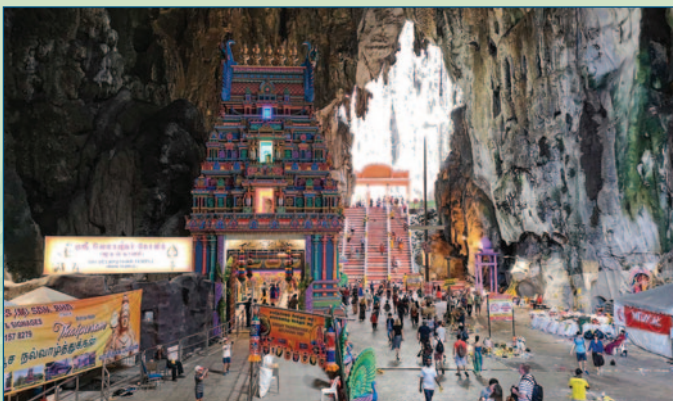
As usual, on the second day of the event, there will be a networking party in the exhibition halls, after the sessions.

The elegant Thean Hou Temple, a six-tiered Chinese temple, will be the venue for the ASIA 2023 Gala Dinner. Delegates will be able to enjoy apéritifs in the grounds, with an opportunity to view the gardens, ornate statues, carvings, and water features. The dinner will be an international feast accompanied by traditional music and entertainment.

ACCOMPANYING PERSONS' PROGRAMME

A package of three cultural and touristic visits have been arranged for accompanying persons during the three days of the conference. Tours will not depart before 09:00 hrs and will return in good time for some relaxation and free time before the evening programme.

On the first day there will be visits to the KL Bird Park (which hosts 300 species of birds), and the spectacular orchid gardens. Lunch will be taken at the Tamarind Springs restaurant, where Malaysian specialities will be enjoyed in the ambience of a tropical rainforest.



The next excursion will be to the famous Batu Caves, within a limestone hill dating back millions of years, and housing a number of ornate temples. This will be followed by a visit to the Orang Asli museum, and a viewing of the National Palace.

The third day will feature a lesson in Malaysian cookery, so that the group can prepare lunch based on traditional ingredients, and in the afternoon there will be a visit to the Selangor pewter factory (with a chance to learn about this craft and produce a dish).

Accommodation has been blocked in Kuala Lumpur, at a number of hotels to suit all budgets, and these can be booked via the registration site. Post conference tour arrangements have now been finalized..

Check updates at: www.hydropower-dams.com

STUDY TOURS

Sungai Perak cascade

3 days, 2 nights

Day one: Saturday 18 March

The group will depart from the Kuala Lumpur hotels after breakfast, for a journey by road to Ipoh, in Perak state.

There will be three stops en route. One will be for a morning coffee, and the next to view a spectacular 'cave temple', where a large and ornate buddhist temple was created, in ancient times, within a limestone cavern. It has been beautifully preserved over the years, and there are frescoes and statues to be admired.

After lunch there will be a visit to Bukit Merah Orang Utan island, accessed by a 15 minute ferry ride across a lake. This is a rehabilitation/conservation centre for endangered orang utans, run by a scientific foundation. As well as providing a sanctuary for the animals, it is also a centre for research and education.

The group will continue to the Ipoh region, for dinner and two nights' stay at the Haven Suites rainforest resort. Participants will have views over a lake, and the flora and fauna of the surrounding jungle.

Day Two: Sunday 19 March

The group will leave after breakfast for a drive along the course of the Sungai Perak,



for the first technical visit, to Temengor dam and its hydropower plant; this is the furthest upstream and largest plant in the Sg Perak cascade development.

Temengor, with a 128 m-high rockfill embankment dam, was originally built specifically for hydropower (348 MW from four units, producing 870 GWh/year), but is now also an important fish-breeding site.

Lunch will be taken near the reservoir, followed by a short boat trip on the lake.

The second technical visit will be to the Bersia concrete gravity dam, a short distance away, downstream of Temengor. The dam has four gated spillway bays; its reservoir supplies a 72 MW powerplant,



which began operation in 1983, and produces around 240 GWh/year.

In the afternoon, the group will travel back to the Haven resort for dinner, and the second overnight stay.

Day Three: Monday 20 March

After breakfast, the tour will head to the Chenderoh dam and hydro plant. Most of the route taken will be different from the previous day, this time passing through small villages and a completely rural landscape, with a chance to spot many species of birds, and interesting vegetation.

Chenderoh is the oldest dam in Malaysia. The hydro scheme, for the Lower Perak region, was considered the largest industrial undertaking in the Malay Peninsula at the time of its completion in 1930. The reservoir has an area of 25 km², and the powerplant has an installed capacity of 40.5 MW, from five units.

After lunch, the group will travel back to Kuala Lumpur, where the tour will end.

Tour prices:

Single room at the resort: US\$ 680

Share of a twin room: US\$ 550

Prices include overland travel in six-seater vehicles, two nights' accommodation, all meals, the services of a tour guide, and entrance fees for visits.



Klang Gates dam, SMART tunnel and Petrajaya

One-day excursion hosted by MYCOLD

This one-day trip will take delegates to see a water supply dam within the Kuala Lumpur area, and a multipurpose tunnel. Klang Gates dam is a concrete arch structure with a central spillway, and was Malaysia's first water supply dam when completed in 1958. It is the main water source for the Klang valley.

There will also be a chance to visit Malaysia's 9.7 km-long Stormwater Management And Road Tunnel (SMART). The tunnel was built to solve the problem of flash floods in Kuala Lumpur and to reduce traffic jams. It is the longest multipurpose tunnel in the world, and received the UN Habitat Scroll of Honour Award.

There will then be time for a short tour of Putrajaya garden city, 25 km south of Kuala Lumpur, which has been the seat of the Malaysian Government since 1999

NB: This trip must be booked through MYCOLD, at <https://icdsme.mycold.com.my>

- Participants of both tours should extend their stay in KL to include the night of Friday 17 March. Friday can be spent attending MYCOLD's dam safety conference (details on the website given above), or at leisure in KL.
- Those not taking night flights home after the tours can book an extra night in KL, at the special conference rates.



EXHIBITION AND SPONSORSHIP

Shangri-La Hotel, Kuala Lumpur, Malaysia ~ 14 - 16 March 2023

A major technical exhibition will run alongside the ASIA 2023 conference (14 - 16 March), showcasing the latest developments in the water and renewable energy sectors, as well as the activities of professional associations, and the services of specialist consultants, contractors and equipment suppliers. All lunch and refreshment breaks will take place in the spacious exhibition halls, and there will be a networking party after the conference sessions on 15 March to provide an additional opportunity for meetings between exhibitors and international delegates. Exhibition stands are available in units of 6 m², and custom-built units can be arranged. Some favourable positions still remain; if you would like to book a place, we recommend that you contact the sales team as soon as possible (see details below).

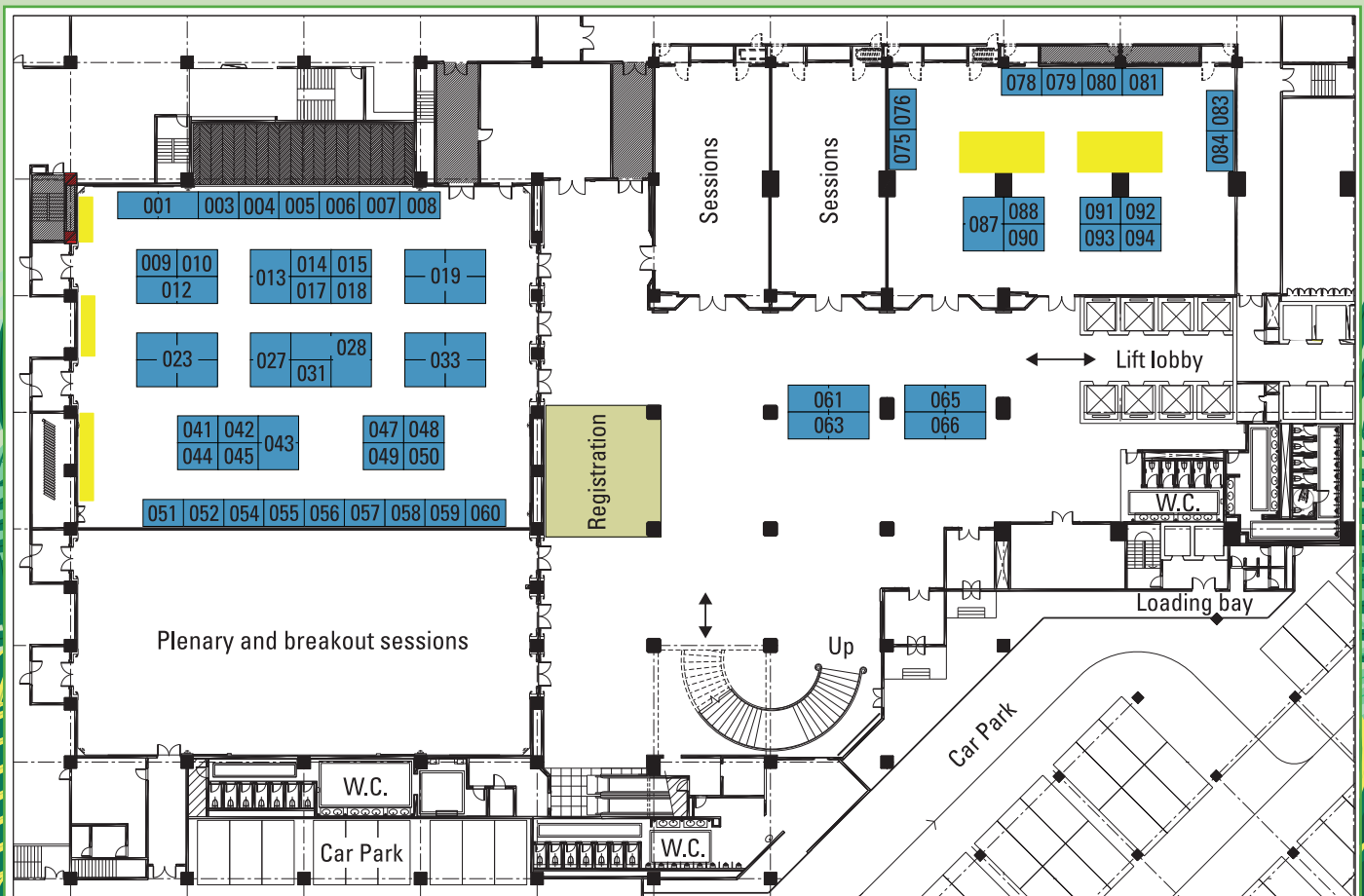
Single stands available: 3 x 2 m (6 m²) = US\$ 3650 = Reserved = Catering

A number of sponsorship opportunities are available, such as conference bags, water coolers, coffee and lunch breaks, WiFi, and various social events. Full details can be obtained from our Sales & Marketing team, and are also available on our website.

Meanwhile, for further information or to reserve an exhibition stand, contact:

Richard Henley or Tanita Chondrunaiko • Tel: + 44 20 8773 7252/0 • Email: sales@hydropower-dams.com

For the latest plan information please visit: www.hydropower-dams.com/asia-2023/exhibition-plan



Company	Website	Stand No.
AFRY	www.afry.com	13
Andritz Hydro GmbH, Austria	www.andritz.com	23
Armatury Group a.s. ,Czech Republic	www.armaturygroup.cz	88
Artelia, France	www.arteliagroup.com	6
Axter SAS, France	www.coletanche.com	75
BauCon ZT GmbH, Thailand	www.baucon.at	54
Bently Nevada / Baker Hughes, Malaysia	www.bently.com	50
Carpi, Italy	www.carpitech.com	61
Socotec, France	www.socotec.com	49
CREA Hydro&Energy, Czech Republic	www.creacz.com	94
Dolsar Engineering Inc. Co., Turkey	www.dolsar.com.tr	42
DynaVec	www.dynavec.no	28
Dyrhoff Ltd, United Kingdom	www.dyrhoff.com	44
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Gilkes Hydro, UK	www.gilkes.com	43
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Mapei Malaysia Sdn Bhd, Malaysia	www.mapei.com/my/en/home-page	87
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Norconsult	www.norconsult.com	28
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Quest Integrity NZL Ltd, New Zealand	www.questintegrity.com	76
SEBA Hydrometrie GmbH & Co. KG	www.seba.de	83
SMEC (M) Sdn Bhd, Malaysia	www.smec.com/au	45
Solétanche Bachy, France	www.soletanche-bachy.com	93
Stahlhandel Gröditz GmbH, Germany	www.stahlportal.com	7
Thordon Bearings Inc, Canada	www.ThordonBearings.com	10
Tinfos	www.tinfos.no/	28
Tractebel	www.tractebel-engie.com/en	48
Trevi Construction Co LTD, China	www.trevispa.com/en	55
Troyer Spa, Italy	www.troyer.it	5
Van Halteren Technologies Boxel B.V., Netherlands	www.vanhalteren.com	52
Verbund Hydro Consulting, Austria	www.verbund.com/en-at/business-customers/hydro-consulting	80
Vesbo Asia PTE Ltd, Singapore	www.vesbo.com	4
Whessoe, Malaysia	www.whessoe.com.my	19
Worldsensing, Spain	www.worldsensing.com	79
Worthington Products, USA	www.tuffboom.com	63
WWS Wasserkraft GmbH, Austria	www.wws-wasserkraft.at	41
Xylem - Sea and Land Technologies, Malaysia	www.sea-landtech.com	9
Yantai Sunny Rubber Co., Ltd, China	www.sunnyrubberglobal.com	31
Zeco Hydropower, Italy	www.zeco.it	18

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The online ASIA 2023 registration is now open, and bookings can be made via: www.hydropower-dams.com
 The system is simple to use, but in the event of any difficulties, please contact Event Management Services.
 Email: Asia2023@ems-ltd.org ~ Tel: +44 1225 460838
 Prices for each delegate category and conference activity are given below.

FULL DELEGATE FEE Includes attendance of the Conference and Exhibition; documentation; conference papers which can be downloaded from the Conference App; morning and afternoon refreshments; lunches during the Conference; full social programme. **(until 27 Jan) US\$ 1160 (from 28 Jan) US\$1270**

REDUCED DELEGATE FEE For existing subscribers to *Hydropower & Dams*. **(until 27 Jan) US\$ 1070 (from 28 Jan) US\$1180**

FEE INCLUDING NEW SUBSCRIPTION TO H&D Six issues, from No. 2, 3 or 4, 2023 (please specify preferred start date) + Atlas + Maps. **(until 27 Jan) US\$ 1315 (from 28 Jan) US\$1420**

SPEAKER FEE Includes all facilities described above for Full Delegates, plus an additional reception on Monday 13 March. NB: This fee applies to one person per paper (main author or presenter). **US\$ 630**

FIRST EXHIBITOR FEE (One full participant fee is included with exhibition booking). **US\$ 0**

SECOND + THIRD EXHIBITOR FEE (Fee per person for up to two additional exhibitors). This includes all benefits available to full delegates. **US\$ 845**

ASIA 2023 SMALL HYDRO TRAINING SEMINAR (Full day on Monday 13 March) **US\$ 50**

ACCOMPANYING PERSON FEE (For family members, partners or friends; not colleagues attending the conference or exhibition). The fee includes the excursions each day, with lunch, and the evening social events. **US\$ 380**

HALF-DAY CITY EXCURSION WITH LUNCH (on 13 Monday March). Cost per person: **US\$ 90**

DONATION TO THE AMI HYDROPOWER FOUNDATION: There will be opportunity when registering to make a donation to the AMI Hydropower Foundation, a charitable foundation, set up by Aqua-Media and governed by a board of international trustees. It exists to facilitate the participation of delegates from less developed countries at the annual Hydro Conferences.

STUDY TOURS

Tour A - A three-day trip to the **Sungai Perak cascade development**, including visits to the **Temenggor, Chenderoh and Bersia dams and hydro plants**, a lake cruise, two nights accommodation in suites at a rain forest resort near Ipoh, some touristic/cultural excursions, including a temple cave, an orang utan sanctuary run by a research/educational foundation, and a chance to experience the flora and fauna of the region. Prices are as follows:

US\$ 680 per person requiring a single hotel room); or, **US\$ 550** per person sharing a twin room. Accommodation is in one-room suite,s overlooking the lake at the Haven Suites resort. Prices include transport, meals, accomodation, entry fees, and a guide.

Tour B - One-day trip organized and hosted by MYCOLD to the **Klang Gates water supply dam**, near to Kuala Lumpur city. It is the main water supply dam for the Klang valley. There will also be a visit to Malaysia's **9.7 km-long SMART tunnel** (Stormwater Management And Road Tunnel). It is the longest multipurpose tunnel in the world, and solved the problem of flash floods in Kuala Lumpu, as well as reducing traffic jams during the rush hour.

NB: This trip should be booked through the MYCOLD conference website at: icdsme2023@mycold.com.my, where further information and prices can be found.

• Delegates taking either tour should extend their stay in Kuala Lumpur to include the night of 17 March, and may also book an additional night after the tours, if required. This should be done at the time of registration, and the special conference rates will be available.

DIETARY REQUIREMENTS: These may be specified on the online registration system (including, for example, vegetarian, vegan, kosher, halal, gluten free, etc).

VISA REQUIREMENTS: You can apply for an invitation letter to support your visa application during the on-line registration process. NB - the majority of nationalities do not require visas to attend a conference in Malaysia.

NB: Attendance of the Welcome Reception and Farewell Dinner are included within the registration fees for all participants. However, we request a nominal contribution of US\$ 10 per event for those wishing to attend, to encourage a firm commitment to participate. This is important to enable us to assess numbers for catering, and avoid food wastage.