

ASIA 2020

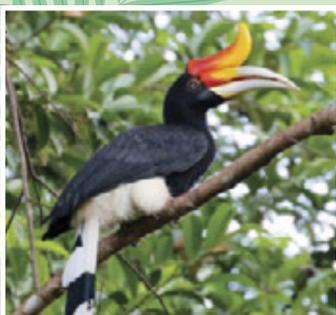
Eighth International Conference and Exhibition on Water Resources and Renewable Energy Development in Asia

Shangri-La Hotel, Kuala Lumpur, Malaysia ~ 8 to 10 December 2020

Organized by:

THE INTERNATIONAL JOURNAL ON
**HYDROPOWER
& DAMS**

Supporting Organizations include:





MISSION OF ASIA 2020

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 7 December	Tuesday 8 December	Wednesday 9 December	Thursday 10 December
<p>From 09.00 hrs: 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 on: Predictive maintenance for dam assets</p> <p>11.00 hrs: Excursion departs City tour with lunch</p> <p>Kuala Lumpur, 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>20.00 hrs: Speakers' and Chairpersons' Reception Shang Restaurant, Shangri-La Hotel</p>	<p>09.00 hrs: <i>Opening Plenary Session:</i> Welcome addresses Opening addresses</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 and cascades</p> <p>19.30 hrs: Welcome Reception Garden and Terrace, Shangri-La Hotel</p>	<p>09.00 hrs: <i>Parallel Sessions:</i> 7 - Development opportunities 8 - Civil design and construction 9 - IEA session</p> <p><i>Coffee</i></p> <p><i>Parallel Sessions:</i> 8 - Civil design and construction contd. 10 - O&M and refurbishment 11 - Climate</p> <p><i>Lunch</i></p> <p><i>Parallel Sessions:</i> 12 - Hydropower equipment 13 - Tunnels and underground works 14 - Cross-border collaboration</p> <p><i>Coffee</i></p> <p><i>Parallel Sessions:</i> 15 - New approaches to RE systems 16 - Sedimentation management 17 - Water resources management</p> <p>17.30 hrs: Networking party with refreshments in the Exhibition Halls (Evening free for private parties)</p>	<p>09.00 hrs: <i>Parallel Sessions:</i> 18 - Hazards and challenging sites 19 - Small hydro MYCOLD Workshop on Sedimentation</p> <p><i>Coffee</i></p> <p><i>Parallel Sessions:</i> 20 - Dam safety 21 - Capacity building MYCOLD Workshop on Sedimentation</p> <p><i>Lunch</i></p> <p><i>Closing Plenary Session</i> Summary and session outcomes</p> <p><i>Coffee</i></p> <p><i>Leisure time before dinner</i></p> <p>19.30 hrs: Conference Dinner Thean Hou Temple Kuala Lumpur</p>

THE INTERNATIONAL STEERING COMMITTEE

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Prof D.A. Williams, UK
Xaypaseth Phomsuepha, Lao PDR
Prof Xu Zeping, China

PRE- AND POST-CONFERENCE EVENTS

KL City and Sightseeing Tour, including lunch

Monday 7 December

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. Delegates will return to the Shangri-La in the late afternoon.

TRAINING WORKSHOPS

Monday 7 December: Half day, afternoon

Shangri-La hotel

PRIVATE SECTOR ROLE IN FUTURE HYDROPOWER

*Led by Dr Judith Plummer-Braeckman,
University of Cambridge, UK*

Hydropower is cost effective and can offer many additional benefits beyond power generation. However, these projects are highly capital-intensive and site-specific, with a long preparation phase, lengthy construction period, and multiple environmental and social concerns. As a result, they are often regarded as risky investments, especially by private sector investors, making it difficult to attract financing for new projects. Yet hydropower accounts for the largest share of renewable energy generation globally and will, as such, play a key role in facilitating the transition to a zero-carbon economy and improving energy access in emerging markets. It could also support the transition to a greater proportion of intermittent renewables in electricity grids through providing energy storage and grid stability services. The limited nature of public resources means that more private sector financing will be needed in the future to facilitate this transition.

The University of Cambridge Institute for Sustainability Leadership (CISL) will present a workshop which aims to bring together a diverse group of stakeholders, with an interest in finance, to discuss the role that the private sector may play in future investment

in hydropower. In particular, we will review the finance options together with the risks and possible risk mitigation strategies. The discussion will offer the participants an opportunity to pursue the current thinking around these topics as well as have an input to the subsequent stages of our research on the financing of hydropower projects.

Monday 7 December: 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 which 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.

THREE TRAINING WORKSHOPS COORDINATED BY MYCOLD

Monday 7 December: Full day

Shangri-La Hotel

PREDICTIVE MAINTENANCE FOR DAM ASSETS

(Speakers and Workshop content to be announced shortly).

Thursday 2 July : Half day (in parallel with the morning sessions of ASIA 2020)

Shangri-La Hotel

EROSION AND SEDIMENT CONTROL PLAN

Led by Ir. Azman Abu Bakar

Sediment is a major pollutant in waterways. Sediment-laden runoff increases the total suspended solid (TSS) and turbidity (NTU) of the receiving waterways. Uncontrolled earth disturbance, deforestation and construction activities, exposed to rainfall and runoff, cause excessive erosion and sedimentation. The larger the exposed earth disturbance the higher risk of water pollution which can adversely impact the public health, safety and welfare. Therefore, qualified persons preparing erosion and sediment control plans (ESCP) must produce designs that allow proper management of earth disturbance activities including the associated processes and soils, and operators/contractors must follow the plans and specifications, to minimize water pollution and prevent water quality violation.

The course will focus on preparing an effective ESCP based on a systematic approach, ESCP implementation and best management practices (BMPs) inspection and reporting for water pollution risks mitigation. The course will help the participants to gain the practical knowledge and skill sets needed to deal with issues/challenges as well as the applicable regulatory requirements related to erosion and sediment control (ESC) and storm water pollution prevention.

Friday 8 December: Full day

The Energy Sphere, Universiti Tenaga Nasional (Uniten), Kuala Lumpur

FLOOD EVALUATION AND DAM SAFETY

Speakers: Datin Prof. Ir. Dr. Lariyah Mohd Sidek, President of MYCOLD and Professor, Institute of Energy Infrastructure, UNITEN; and, Rahsidi Sabri Muda, Principal Researcher, Unit Head for Civil engineering & Geoinformatics, TNB Research Sdn Bhd

This one day workshop will provide a technical engineering training programme prior to the detailed technical evaluations done at TNB hydro stations. On completion of the course, the participants should have a good understanding of:

- Hydrological analysis
- Modelling using statistics and frequency distribution to calculate PMP, PMF and develop Flood Hazard Maps using MIKE 1D and MIKE2D
- Flood hazard maps produced from modelling



CONFERENCE SESSIONS

The following pages show details of confirmed sessions and speakers. Additional speakers and panellists are being invited, and details of updates will be posted regularly on our website (www.hydropower-dams.com)

Tuesday 8 December ~ Morning

Opening Plenary Session

■ Welcome to ASIA 2020 and introduction to the programme – Alison Bartle, Director, Aqua-Media International Ltd, UK

■ Opening addresses by:

- Michael Rogers, President, ICOLD
- Felix Reinders, President, ICID
- Datin Prof Ir Dr Lariyah Binti Mohd Sidek, President, MYCOLD
- Dr Loïc Fauchon, President, World Water Council
- Niels Nielsen, IEA-Hydro
- Officers of TNB/Uniten and Sarawak Energy

Coffee break and official opening of the ASIA 2020 Exhibition

Plenary Session Part 2 – Keynote addresses will include

- Dam safety experiences in my 40 year career in hydropower and dams – Michael Rogers, President, International Commission on Large Dams
- World Bank strategy and lessons learned for dam safety – Satoru Ueda, Lead Dam Specialist, The World Bank
- Future hydropower in the post-2020 world – Asit K. Biswas, Lee Kuan Yew School of Water Policy, Singapore
- World Bank involvement in the hydro sector – P. Karki, Global Lead, Hydropower & Dams, The World Bank

Tuesday 8 December ~ Afternoon

Session 1 - Change and complexity in hydropower finance: From MDBs and PPPs to bilateral debt

Chair: Dr Judith Plummer Braeckman, University of Cambridge, UK

The scale of finance needed for large-scale energy infrastructure projects is beyond the levels which can be provided by development finance alone. This, together with a perception that electricity projects can be self-funding where tariffs are cost-reflective has led to multilateral development banks assuming new roles to facilitate and provide guarantees for large hydropower projects. Increasingly, projects are being financed through public-private-partnership (PPP) arrangements, even in emerging economies, sometimes with support from financiers in a neighbouring country wishing to import electricity generated by the project. However, private financing packages are complex and can take a long time to reach financial closure leading to delays in development. Obtaining private finance for economically viable projects in emerging economies can also be challenging, because private sector investors are often not remunerated by governments for the economic and system benefits of a large hydropower dam.

Emerging economies are increasingly turning to so-called 'coordinated bilateral finance', from the export credit agencies in BRIC and other economies (such as China Exim Bank). High debt service and the lack of attention to social and environmental protection protocols are among the suggested challenges for emerging economies from this form of finance, but it can be quicker and simpler to arrange than MDB or commercial finance. The talks in this session will examine the risks and benefits associated with all forms of finance, with illustrative examples from sub-Saharan Africa and Southeast Asia.

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-cased water supply treatment by the Theun-Hinboun Hydropower Power Company in downstream relocation villages, Laos – Singphet Keothongnir 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

■ Hydropower and fish: recurring issues and how to solve them – Toby Coe, Fishtek, UK

Session 3 - Planning tools

Chair: Dr Kamal Laksiri, CEB, Sri Lanka

- Quick study of run-of-river potentials with SimPower software – D. Irwanto, Indonesia Hydro Consult, Indonesia; M. Bernicot, ISL Ingénierie, France
- Expansion of the system operations model for the Mahaweli river basin, Sri Lanka – J. Mödinger, B. Freeman and 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. Pali, Fichtner GmbH & Co. KG, Germany

Session 4 - Contractual and legal issues

(Chair to be confirmed)

- 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
- Improving construction time and budget overrun risk management using Monte Carlo simulation – F.P. Nagel, M. Wagner and M. Beisler, ILF Consulting Engineers Ltd., Thailand
- Hulu Terengganu hydroelectric project: The sequencing of Puah dam construction and its contractual perspective – M.S. Bin Abu Bakar, Tenaga Nasional Berhad, Malaysia
- 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, EGIS, France

Session 5 - Social benefits of hydropower and dams

Chair: Dr Cecilia Tortajada, Institute of Water Policy at the Lee Kuan Yew School of Water Policy, Singapore

- Keynote: Social-related aspects of hydropower development within a framework of climate change – Dr Cecilia Tortajada, Institute of Water Policy at the Lee Kuan Yew School of Water Policy, Singapore
- Benefit sharing: Enablers, framing mitigation, conflict resolution and development goals – S. Dhillion, Enviro-Dev, Norway
- Benefit sharing in hydropower projects of Nepal for economic transformation – U. Khatiwada, NRN Infrastructure & Development Limited, Nepal
- Managing hydropower sustainability risks and opportunities through enhancement of social and environmental impact assessment: A corporate commitment – D.C. Yiu Li, J.A.J. Blandoi, F.H. Pathi and N.K. Bujang, Sarawak Energy Berhad, Malaysia
- Difficulties in capturing and quantifying the benefits of hydro plants – G. Dos Santos Cruz Rocha, M. Yasuo Kikuchi and M.A. Villarinho Gomes, Worley, Brazil

Session 6 - River basin management and cascade developments

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

- Operation of run-of-river hydro plants: an example based on XPCL and CNR experience respectively on Mekong and Rhône rivers – C. Sampic and S. Puangpatcharakul Sakolkiat, Xayaburi Power Company Ltd, Lao PDRs; B. Graff and S. Legrand, CNR, France
- Joint and intelligent regulation of large-scale cascade reservoirs for integrated river basin management – Yan Huang, Qiang Zou, Lu Yi, Shan Yu and Xuemin Wang, Changjiang Institute of Survey, Planning, Design and Research, China
- Challenges of the development of independent hydropower projects as part of a cascade on the Arun river, Nepal – M. Heider and P. Schäfer, Fichtner GmbH & Co. KG, Germany; N.R. Singh, S. Dhungel and A. Shrestha, Department of Electricity Development (DOED), Nepal
- Downsizing versus Megalomania: Why downsizing often is the better solution – shown with the example of the Thakot hydro plant development in Pakistan – R. Siebel, Tractebel Engineering GmbH, Germany; M.A. Sheikh, Water and Power Development Authority (WAPDA), Pakistan

Wednesday 9 December ~ Morning

Session 7 - Development opportunities and challenges in Asian countries

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

- Lao Coordination and Monitoring Center (CMC): Achievement and the next steps – S. Trossat and B. Graff, CNR, France; Chansaveng Boungnong and L. Laspho, Ministry of Energy and Mines, Lao PDR
 - Opening small hydropower opportunities in emerging markets such as Malaysia with digitalization – Kai En Lam, Mott MacDonald, Malaysia; P. Currie, Mott MacDonald, Singapore
- National overviews will then be presented on potential, development opportunities and challenges in a number of Asian countries, including India, Nepal, Myanmar, Laos, Turkey, Iraq and others.

Session 8 - Civil engineering: Design and construction

Co-Chairs: M. Rogers, ICOLD President and Stantec, USA;
Prof Xu Zeping, IWHR/CHINCOLD, China

- Keynote: RCC dam developments over the past 20 years – Dr M.R.H. Dunstan, MD&A, UK
- An overview of RCC dam development in China – Chen Guanfu and Zhen Chunzhou, Power China International Group Ltd, China
- Construction challenges of a high CFRD dam for the Nam Ngum 3 hydro plant – X. Ducos, Q. Bercher, G. Dubry and F. Brousset, Artelia Eau & Environnement, France; K. Phet-Asa, Electricité du Laos, Lao PDR
- Concrete faced rockfill dam (CFRD) construction at the 330 MW Kishanganga hydroelectric project, India – S. Dave and S. Raut, Hindustan Construction Company Ltd, India
- 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
- The design and construction of a new dam and hydro plant in Kurdistan, Iraq – H.A. Hawramany, Hydropower Consultant, Iraq
- Application of digital transformation to civil engineering field related to hydropower – M. Kawaguchi, M. Sumida, T. Araki and S. Hibi, Kansai Electric Power Company, Japan
- 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
- Repair, rehabilitation and retrofitting of concrete dams with cement based materials – J.R.M. Conde da Silva, National Laboratory for Civil Engineering, Portugal
- Geomembranes in pumped-storage schemes – G. Vaschetti and A. Scvero, Carpi Tech, Switzerland; J. Cowland, Carpi Tech, USA
- Lower Kaleköy dam: A tailor made composite dam structure – M. Smesnik, H. Nowotny and M. Verdianz, Afry, Austria; D. Rothweiler and M. Steinl, Afry, Switzerland

Session 9 - Achieving optimum performance from ageing assets

Chair: Dr A. Müller, EPFL-LMH, Switzerland

The untapped energy and power potential of ageing hydropower assets is normally much less costly to develop than new greenfield sites. This IEA Hydro session presents experience on ways to identify and develop this potential, as well as modernizing these assets to align with evolving requirements of the electricity system.

- Optimizing the operation of hydropower assets through reduced scale model testing – Dr A. Müller and Prof F. Avellan, EPFL-LMH, Switzerland
- Squeezing more 'juice' out of Scotland's hydro – G. Black and Prof D. Williams, Learning Hydro, UK
- Refurbishment and modernization of SEB's 35 year-old Batang Ai hydroelectric plant (speaker to be confirmed)
- Optimization and modernization of existing small hydro assets – J. Crewdson, Gilbert Gilkes & Gordon Ltd, UK

Session 10 - O&M and refurbishment

Chair: D. Paschini, EDF, France

- Contracting out rehabilitation of hydroelectric plant – J.H. Gummer, Hydro-Consult Pty Ltd, Australia
- Major rehabilitation and upgrade of the Toktogul hydro plant in the Kyrgyz Republic: Approach, challenges and benefits – O. Gavasheli and H. Von Büren, Fichner 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 – T. Frener and F.P. Nagel, ILF Consulting Engineers (Asia) Ltd, Thailand
- Study for the rehabilitation of the bottom outlet service and emergency gates for the de-sedimentation tunnel at the Shahid Abbaspour dam and powerplant – M. Ghaderi, Fanavari Novin Niroo Co, Iran
- 66 MW hydro turbine start-up assistance – N. Péton, Baker Hughes, France; S. Drygin Baker Hughes, Russia; K. Wunnapun, Baker Hughes, Thailand; and Woo Kin Phong, Baker Hughes, Malaysia
- DRIP: 223 dams to be rehabilitated in India - Lessons learnt – S. Giraud, Egis, France

Session 11 - Climate change: Research and resilience

(Chair to be confirmed)

- Keynote: Water storage for managing extreme hydrological events caused by climate change – Prof Asit K. Biswas, Distinguished Visiting Professor, University of Glasgow, UK, and Chairman, Water Management International Pte Ltd, Singapore,
- IEA Communiqué to national governments on 'Climate change: Adaptation, resilience and valuation of hydropower services' – N. Nielsen, IEA-Hydro; A. Harby, SINTEF, Norway; J. Damazio, CEPEL, Brazil
- Future safety of dams in a changing climate – Lariyah Mohd Sidek, Hidayah Basri, J. Razali, M. Marufuzzaman and M. Ruzaimi Yalit, Universiti Tenaga Nasional, Malaysia; A.Z. Abdul Razad, M.R. Mohd Radzi and A. Talib, Tenaga Nasional Berhad, Malaysia
- The importance of hydroelectric power generation in combatting climate change in the Malaysian context – C.R. Donnelly, S. Bohrn, S. McGeachie and J. Groeneveld, Hatch Ltd, Canada
- The economics of climate change in the context of hydropower in Asia – S.D. Usher, Aqua-Media International Ltd, UK

Wednesday 9 December ~ Afternoon

Session 12 - Hydropower equipment

(Chair to be confirmed)

- Xayaburi hydropower project: Challenges encountered and overcome during the commissioning phase of the first run-of-river hydropower plant on the lower Mekong – A. Schürmann and G. Judtman, Afry, Switzerland; W. Nedsawang and P. Mahamai, CK Power Plc, Thailand
- Development and selection principles for Francis turbine runners in China's sedimentary river hydro stations – Pei Zhenwei and Gao Daoyang, China Gezhouba Group International Engineering Co Ltd, China
- Modelling and analysis of hydro-abrasive erosion in Francis turbine at different operating conditions – S. Sangal, M.K. Singhal and R.P. Saini, Indian Institute of Technology, India
- Multiple compact units: Detailed analysis – P. Dufflon, 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
- 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, BBA Engineering Ltd, Canada

Session 13 - Tunnels and underground works

Chair: Dr D. Djarwadi, PT North Sumatera Hydro Energy, Indonesia

- Construction of power waterway for Nam Theun 1 hydropower project – A. Sorgenfrei and P. Nater, Afry, Switzerland; S. Martin, Afry, Thailand
- How CFD enables innovative designs to benefit investors – F.P. Nagel 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 light weight concrete for cavity filling in underground caverns – S.K. Sharma, J. Bali, J.K. Thakur and B. Kathar, HCC Ltd, India
- Construction of shaft powerhouse for the Nam Theun 1 hydropower project – S. Martin and P. Bollinger, Pöyry Energy Ltd., Thailand; C. Kreuzer, Pöyry Austria; D. Rothweiler and M. Steinl, Pöyry Switzerland Ltd., Switzerland

Session 14 - Cross-border and regional developments

(Chair to be confirmed)

This panel discussion will focus particularly on the collaboration between the Mekong riparian countries in South East Asia, and the BBIN countries (Bhutan, Bangladesh, India and Nepal). Participants in the discussions will include Mr Palakorn Chanbanyong, Hydropower Specialist at the Mekong River Commission, Laos; a senior representative of the Lancang-Mekong Water Resources Cooperation Centre, Beijing; Dasho Chhewang Rinzin, Director of Druk Green Power Corp, Bhutan; and, R.V. Shahi, former Power Secretary, Government of India. (Additional speakers to be confirmed.)

Session 15 - New approaches to renewable energy systems

Chair: C.R. Donnelly, Hatch Ltd, Canada

- Optimal design and joint operation of floating solar-hydro plant facilities – F. Welt, A. Domun, 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.F. Sifuentes, F-P. Nagel, F. Zimmermann, 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
- Using spilled water to generate green hydrogen – G. Dos santos Cruz Rocha, Worley, Brazil; P. Ebert, Worley Group, Australia
- Pumped hydropower storage and intermittent renewable generation: Lessons learned to guide the new approaches to renewable energy systems – E. Guilleminot, Mott Macdonald, Singapore; B. Minhinick, Mott MacDonald Melbourne, Australia

Session 16 - Sedimentation management

Chair: Prof S. Kantoush, Water Resources Research Centre, 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 Diamer Basha dam project on Indus river – M. Amin, Z. Majeed and S. Munawar, WAPDA, Pakistan
- Estimating storage capacity loss caused by sedimentation for hydro lakes in Sarawak, Malaysia – J. Janggu, S.Nadya and M. Hussain, Sarawak Energy Berhad, Malaysia
- Nessie® Robot, an innovative ecological and economical sediment dredging solution – S. Caffo, EDF, France; R. Gaillard and F. Martareche, Watertracks, France

Session 17 - Water resources management

(Chair: to be confirmed)

- 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
- Smart technology for integrated management of diversified water resources – Kapil Gnawali and Kyung Taek Yum, Sungkyunkwan University, Republic of Korea; KukHeon Han, Smart Water Grid Research Group, Republic of Korea

Thursday 10 December ~ Morning

Session 18 - Construction challenges and natural hazards

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

- Keynote: The benefits of integrated geohazard assessment for the hydropower sector – J. Reynolds, Reynolds International Ltd, UK
- Obstacles to dam design in the Himalayas – B. Poudel and T.C. Bhatta, Vidhyut Utpadan Company Ltd, Nepal
- The Belisama pumped-storage plant in the Manila area, Philippines: Complex volcanic environment results in geotechnical and constructive challenges – T. Dietler, Afry, Switzerland; I.E.F. Ulgado, Belisama Hydropower Corp., Philippines
- Challenges in execution of the Tehri pumped-storage project, Uttarakhand, India – S. Dave and B. Kumbhar, Hindustan Construction Company Ltd, India
- 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 19 - Small hydro

Co-Chairs: Prof David Williams and Gordon Black, Learning Hydro, UK

- Exploring small hydro potential in the less developed countries – R.P. Singh, Consultant, Austria
- Malaysia's community-based hydropower experience – Hon A.B. Lasimbang, Malaysia
- Diversion weir for small hydro power projects: Selection and design – V.M. Das, M.K. Singal and S.K. Singal, Indian Institute of Technology, India
- 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
- Small hydropower units: Agents of change in northern areas of Pakistan – Y.A. Hamza, Regreenpak, Pakistan
- Financial feasibility analysis and socioeconomic impact of Lodagung micro powerplant in Blitar, East Java, Indonesia – E. Susilowati, A. Riyanto and G. Nugroha, Jasa Tirta Energi, Indonesia

Session 20 - Dam safety

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

- 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
- Assessing the safety of the Ituango cement-bentonite cutoff wall – E. Tiedje, C.R. Donnelly, Hatch Ltd, Canada; J. Arango, EPM, Colombia; L.F. Restrepo Vélez, Integral, Colombia
- Structural health monitoring of ageing dams – M. Tatin, V. Lamour, Tien Dung Le and F. Michelin, Cementys, France
- Vertical gate design: Dam and powerplant safety in relation to flood management – D. Hassall, K. Koo and S. Sam, Norconsult, New Zealand
- Safety of dams against earthquakes: an Indonesian practice – Dr D. Djarwadi, PT North Sumatera Hydro Energy, 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. Suhatri, I. Othman, M.K. Shuib and P.A. Sari, University of Malaya, Malaysia; M.R. Samsuri, Tenaga Nasional Berhad, Malaysia; Hendriawan, Institut Teknologi, Bandung, Indonesia.

Session 21 - 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, Kansai Electric Power Company, Japan
- An analysis between learning needs and technical training solutions for the hydropower business – M. Henkes, M. Kaufmann, S. Schrötle and S. Deininger, Voith Hydro GmbH & Co. KG, Germany; M.H. Mohamad, Voith Turbo Sdn Bhd, Malaysia

MYCOLD Training Workshop on Sedimentation

See Pre- and Post-Conference Events for details of four Training Workshops organized by MYCOLD. Two will take place before the conference, and one on Friday 13 March. Please note that there is a separate registration charge for the MYCOLD Workshops. Details are on the registration site.

Thursday 10 December ~ Afternoon

Closing Plenary Session

- Session outcomes and recommendations
- Summaries of side events
- Conclusion of ASIA 2020
- Welcome to the 9th World Water Forum, Dakar, Senegal
- Welcome to AFRICA 2021, Uganda

SOCIAL PROGRAMME

As always, the 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.

Monday 7 December

Pre-Conference dinner for Chairpersons and Speakers at 20.00 hrs

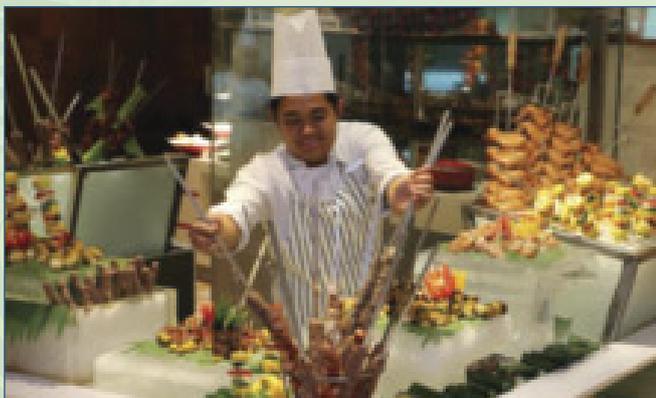
After meetings and briefings about arrangements for the conference, those chairing or co-chairing sessions, and speakers presenting accepted papers, will be welcomed to a reception with a buffet supper at the elegant Shang Palace Chinese restaurant at the Shangri-La hotel. This will provide an opportunity for all session participants to meet and get to know each other ahead of the sessions. Regular speakers will have an opportunity to catch up with old friends.



Tuesday 8 December

ASIA 2020 Welcome Reception at 19.30 hrs

This year's reception will take place in the garden and elegant ground floor terrace area of the Shangri-La hotel. Drinks and a buffet supper will be served, and this informal evening will be an opportunity to catch up with friends and make new contacts in the hydro industry.



Wednesday 9 December

ASIA 2020 Networking Party in the Exhibition Halls at 17.30 hrs

Refreshments and snacks will be served in the exhibition halls, which will remain open for two hours after the conference sessions on the second day of the conference. The networking party is a great way for delegates to meet with exhibitors they may have missed during the coffee breaks and lunches for extended discussions. Exhibitors are invited to prepare special demonstrations of equipment, or to welcome key groups of delegates to their stand for drinks.

Thursday 10 December

Farewell Dinner at 19.00 hrs

The elegant Thean Hou Temple, a six-tiered Chinese temple, will be the venue for the ASIA 2020 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. It will be a memorable way to end the week of conference activities.



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. The group will travel by luxury coach, and a guide will be with the group throughout the days. Accompanying persons are also invited to all evening events.

Tuesday 8 December

KL Bird Park, Orchid Gardens and Tamarind Springs Restaurant

Kuala Lumpur Bird Park is a 20.9-acre aviary, located adjacent to the Lake Gardens within the so-called 'green lung' of Kuala Lumpur, Bukit Aman. The park houses more than 3000 birds, representing more than 200 species. About 90 per cent are local birds and others were imported from African and Asia-Pacific countries.

After the Bird Park visit, the group will go on to the Orchid Garden, together with the adjoining Hibiscus Garden. There will be a chance to take a walk among exotic tropical blooms in the landscaped gardens. The park has displays of both terrestrial and epiphytic orchids, which are only found in tropical climates.

Lunch will be served surrounded by the natural beauty of the jungle, at the famous Tamarind Springs restaurant, located on the fringe of the City, within the Ampang natural forest reserve. Tamarind Springs offers fine contemporary Indochinese cuisine and features elegant décor, based on traditional Malay houses, infused with elegant and rustic Asian furnishings. With its wooden decks and tropical vegetation, it gives the feel of being far from the city centre.



Wednesday 9 December

Batu Caves, Orang Asli Museum and Istana Negara

The Batu Caves, on the outskirts of Kuala Lumpur, are within a limestone hill dating back 400 million years, and feature a series of caves and cave temples, reached via 272 colourfully painted steps. The religious site has the world's tallest statue of the Hindu deity Murugan and is one of the most important Hindu shrines outside India. After the Batu Caves visit, the group will visit the Orang Asli Museum to learn about the culture and traditions of the local Orang Asli tribe in Selangor. After lunch the group will have a chance to see the National Palace (home of the supreme head of state, Yang di-Pertuan Agong), and its magnificent gardens, protected by mounted horseguards. It is a splendid example of Malay and Islamic architecture.



Thursday 10 December

Cooking and Selangor pewter

The final excursion offers the opportunity for the group to enjoy the tastes of Malaysian cooking, learning about traditional Malaysian ingredients and cooking techniques, while preparing a selection of dishes, which will be enjoyed by the group for lunch.

After lunch, guests will take a trip to the 'School of Hard Knocks' where they will practice the craftsmanship of creating their own pewter dish, using the traditional tools of hammer, mallet and wooden mould.

After creating a personal pewter dish souvenir, guests will tour the Pewter Factory, where the world famous brand of pewter is produced. The Pewter Museum is a fascinating visit.



STUDY TOUR A

Sungai Perak

3 days, 2 nights (+ third night in KL)

The group will travel by luxury coach to the west of the country, stopping for lunch in Kuala Kangsar before continuing on to the Belum Rainforest Resort, which is one of Malaysia's leading ecotourism resorts. The jungle surrounding the accommodation remains as it has been for centuries. This will be the base for the group for two nights. After check-in, the group will have a sunset cruise on Temenggong reservoir, before heading back for dinner.

Next day, the first technical visit will be to the third largest dam in Malaysia, Temenggong, originally built for hydropower, but now also a major fish breeding site. After



a technical briefing and tour of the main features, the group will move on to visit Chenderoh, the oldest dam and hydro plant in the country, built in 1920 for the Lower Perak, and considered the largest industrial undertaking on Peninsular Malaysia at the time. The main dam is at el. 50 m. The powerplant has an installed ca-

capacity of 40.5 MW, from five units. Finally, the group will visit Kenering dam, which has a 120 MW powerplant. Packed lunches will be provided on this day. The day will end with dinner and relaxation back at the Belum Rainforest Resort.

On the morning of the third day, the group will spend a couple of hours in the morning exploring Royal Belum park, visiting the 60 salt licks around the area as well as having an opportunity to see the rare rafflesia flower. An early lunch will be served at the resort before the group checks out and returns by coach to Kuala Lumpur.

Back in Kuala Lumpur guests will check back into the Shangri-La and re-join the Tour B group for a farewell dinner. The tour will end after breakfast next morning.



STUDY TOUR B

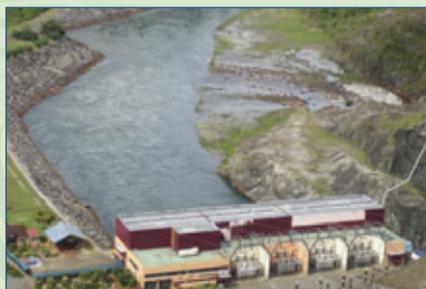
Kenyir and Terengganu

3 days, 2 nights (+ third night in KL)

The group will travel by luxury coach to the northeast of the country to Kuala Terengganu, stopping for lunch along the way before arriving at the Kenyir dam, for a briefing and site visit. The dam is 150 m high above its foundation, and has a crest length of 800 m; the fill volume is $15.20 \times 10^6 \text{ m}^3$. After the visit, guests will check into the 4-star Primula beach resort in the heart of Kuala Terengganu, overlooking the East Coast. This will be the group's base for two nights.

On the second day, the next technical visit will be to the Puah dam, an earthfill structure which is a key element of the Hulu Terengganu hydroelectric complex. Puah dam was completed and handed over to the owner (Tenaga Nasional Berhad) in December 2015. The associated powerplant houses two 125 MW generating units. After a briefing and a tour of the dam and powerplant, the group will travel on to Pengkalan Gawi for lunch, before taking a relaxing boat trip on Kenyir Lake. The third day will allow participants to enjoy the local culture, starting with a visit to the Kuala Terengganu drawbridge; this is the first drawbridge to be built in Malaysia and

Southeast Asia, and was constructed by Zelan Construction Sdn Bhd. The construction of the bridge began in August 2014 and was completed in mid-2019. After this visit, the group will travel on to the Kenyir Elephant Sanctuary which was built in 2012 on a 256 ha site, of which 90 per cent has been left in its natural forest state, to provide a home for the elephant orphans who live there. Lunch will be served at a local restaurant and then the group will depart to the airport for the flight back to Kuala Lumpur. Guests will check into the Shangri-La hotel and in the evening there will be a farewell dinner together with Tour A participants.





EXHIBITION AND SPONSORSHIP

Shangri-La Hotel, Kuala Lumpur, Malaysia ~ 8 to 10 December 2020

A major technical exhibition will run alongside the ASIA 2020 conference (8 - 10 December), 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 9 December 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).

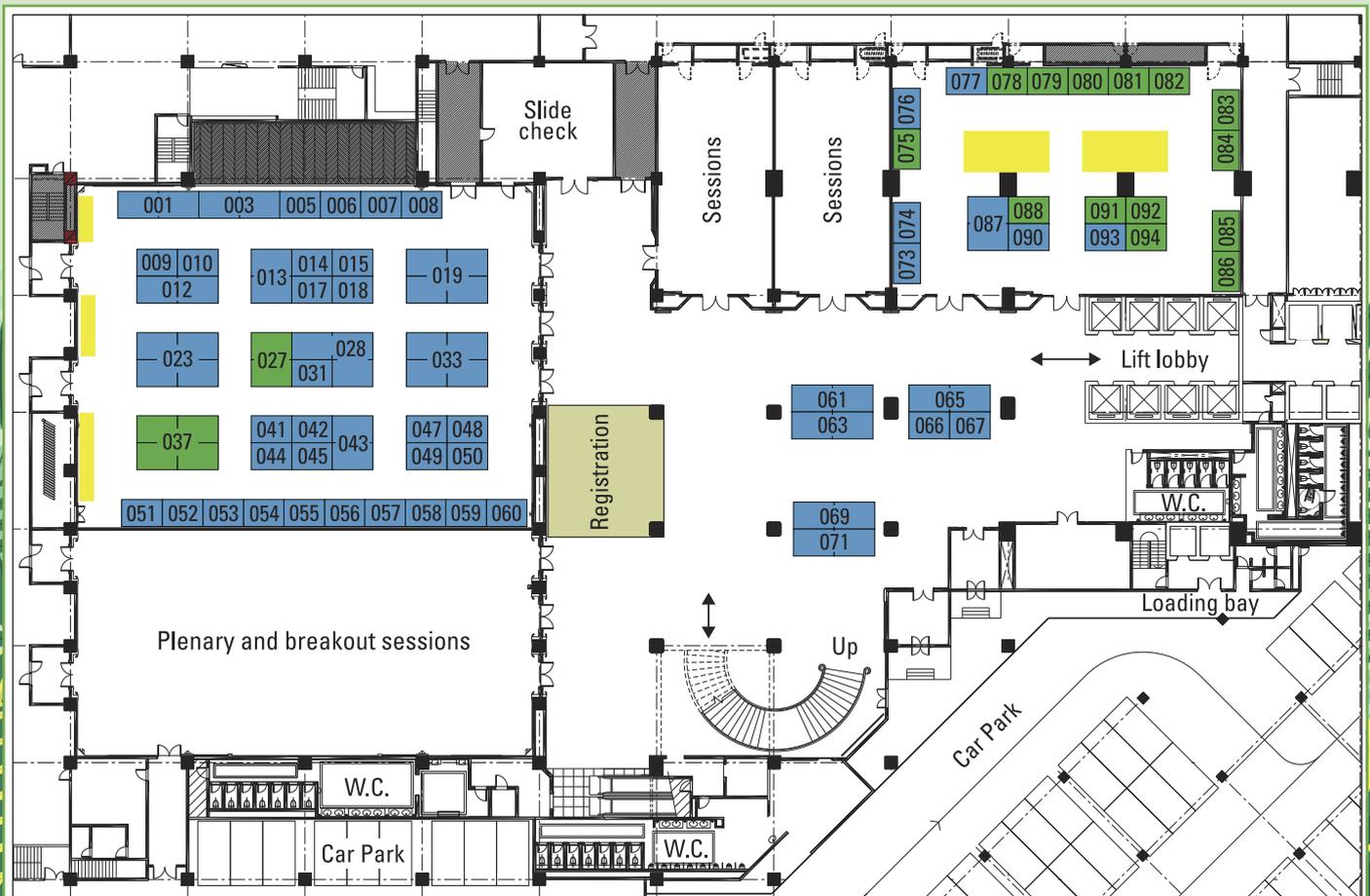
Single stands available: 3 x 2 m (6 m²) = US\$ 3550 = Reserved = Catering

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:

Dr Lukas Port, Mrs Maria Loredo or Mrs Melanie Ganz • Tel: + 44 20 8773 7250/7251/7252 • Email: sales@hydropower-dams.com

www.hydropower-dams.com/asia-2020/exhibition-plan



ASIA 2020 EXHIBITORS (as of April 2020)

AFRY, Thailand	www.afry.com	13
Andritz Hydro, Austria	www.andritz.com/hydro	23
Armaturey Group a.s., Czech Republic	www.armatureygroup.com	67
Artelia, France	www.arteliagroup.com	6
ATB Riva Calzoni, Italy	www.atbrc.com	74
Bently Nevada, a Baker Hughes business, Malaysia	www.bently.com	66
Bosch Rexroth B.V., Netherlands	www.boschrexroth.com	52
Carpi, Switzerland	www.carpitech.com	61
Cementys, France	www.cementys.com/fr	49
CKD Blansko, Czech Republic	www.ckdblansko.cz	53
Dolsar Engineering Inc Co, Turkey	www.dolsar.com.tr	42
Dynavec, Norway	www.dynavec.no	28
Enerquip, Norway	www.enerquip.no	28
F. Nencini	www.nencini.com	47
Feroinvest DOO, North Macedonia	www.feroinvest.mk	14
Fichtner GmbH & Co.KG, Malaysia	www.fichtner.de	73
Gamesa Electric, Spain	www.gamesaelectric.com	12
Gilkes, UK	www.gilkes.com	43
Glenfield Asia Pacific, Australia	www.glenfieldap.com.au	57
Gugler Water Turbines GmbH, Austria	www.gugler.com	8
Hibbard Inshore, LLC, USA	www.hibbardinshore.com	90
ICH, Norway	www.ich.no	28
ICOLD	www.icold-cigb.org	51
ILF Consulting Engineers (Asia) Ltd., Thailand	www.ilf.com	3
Indar, Spain	www.indar.net	17
Industrial Processors & Metallizers (P) Ltd., India	www.ipmpl.co.in	50
Kansai Electric Power Company	www.kepc.co.jp/english	1
KGAL Consulting Engineers Ltd, UK	www.kgalglobal.com	19
Mapei, Malaysia	www.mapei.com	87
Mavel a.s., Czech Republic	www.mavel.cz	60
Montanhydraulik GmbH, Germany	www.montanhydraulik.com	15
Mott MacDonald, Singapore	www.mottmac.com	77
Muhr, Germany	www.muhr.com	65
Multiconsult, Norway	www.multiconsult.no	28
Norconsult, Norway	www.norconsult.no	28
Norwegian Pavilion	www.norwep.com	28
Quest Integrity NZL Ltd, New Zealand	www.questintegrity.com	76
Rainpower, Norway	www.rainpower.eu	28
Rittmeyer AG, Switzerland	www.rittmeyer.com	69
SMEC (M) Sdn Bhd, Malaysia	www.smec.com	45
Soletanche Bachy / Freyssinet, France	www.soletanche-bachy.com	93
Stahlhandel Gröditz GmbH, Germany	www.stahlportal.com	7
STM Srl - Sviluppo Tecnologie Meccaniche, Italy	www.stmpotenza.com	44
The International Journal on Hydropower & Dams	www.hydropower-dams.com	71
Thordon Bearings Inc, Canada	www.ThordonBearings.com	10
Tractebel Engie	www.tractebel-engie.com	48
Trevi Construction Co Ltd, China	www.trevispa.com/en	55
Troyer SpA, Italy	www.troyer.it	5
Voith, Germany	www.voith.com	33
Vortex Hydra srl, Italy	www.vortexhydradams.com	31
Whesoe Sdn Bhd, Malaysia	www.whesoe.com.my	19
Worthington Products, USA	www.tuffboom.com	63
WWS Wasskraft GmbH, Austria	www.wws-wasserkraft.at	41
Xylem - Sea and Land Technologies, Malaysia	www.sea-landtech.com	9
Zeco Hydropower, Italy	www.zeco.it	18

Industry sponsors:

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BOOKING CONDITIONS

The ASIA 2020 - 8th International Conference on 'Water Resources and Renewable Energy Development in Asia' is being organized by Hydropower & Dams (Aqua~Media International), with event administration by Event Management Services, and in close collaboration with ICOLD, MYCOLD, IEA and others.

On-line registration

You can register on-line via the *Hydropower & Dams* website at: www.hydropower-dams.com This is a secure site. Registrations will be handled by Event Management Services on behalf of Aqua~Media. You will receive an acknowledgement of registration on completion of this process; this is not a confirmation (until payment is received).

The organizers reserve the right not to accept applications for attendance (for example, but not exclusively, if applicants are not working in the field of hydro, or if there could be a conflict of interest with the mission of the conference, the organizers, or any policy of the host country).

In the unlikely event of any difficulties using this system, please contact Event Management Services (see contact details below).

Collecting conference documents and badges

The registration desk will be open from 09.00 hrs on Monday 7 December 2020, and delegate bags can be collected from 09.00 hrs. Pre-registration is generally required, by one of the methods mentioned above.

Payment

Payment for all services (fees, hotels, tours) must be made in US dollars (US\$) and received in advance of the Conference. Payment is possible by the following methods:

- On-line by Visa, Amex or Mastercard.
- By bank transfer (see details on the registration form).

All fees paid by credit card will be charged in US dollars (US\$).

Accommodation

The Conference organizers have negotiated rates at hotels in several price categories in Kuala Lumpur. Accommodation bookings are being handled by Event Management Services. Please include your hotel booking at the time of registering (using the on-line booking system). Beware of scam accommodation bureaux who falsely claim to represent ASIA 2020. We recommend that you do not pass credit card details to them. We strongly recommend that bookings are made as soon as possible, and at the latest before the end of February. Payment must be made in full at the time of booking.

Disclaimer

All best endeavours will be made to present the programme as printed. The ASIA 2020 organizers and their agents reserve the right to alter or cancel, without prior notice, any arrangements, timetable, plans or other items relating directly or indirectly to ASIA 2020 for any cause beyond its reasonable control. The organizers

and agents are not liable for any loss or inconvenience resulting from such alteration. The tours are subject to minimum numbers. Tour places are subject to availability on a first-come-first-served basis. Full payment for tours must be received at the time of registration.

Cancellations

Cancellations must be made in writing to Event Management Services. Cancellation charges will be payable as shown in the Table below. Substitution of delegates after a reservation has been made is acceptable before the Conference, and no extra fee is payable. Any necessary refunds (see Table below) will be made after the Conference.

Liability/Insurance

The registration fees do not include the insurance of participants against personal accidents, sickness, cancellations by any party, theft, loss or damage to personal possessions. The organizers accept no responsibility for death, injury, loss or accident, delays arising from any act or default of any person, or any other matter arising in connection with conference services or transport. The organizers make no warranty in this connection.

All services provided are subject to local laws. Arrangements for the Conference have been made in accordance with UK and Malaysian Law.

Delegates, exhibitors and tour participants are strongly advised to take out adequate personal insurance to cover risks associated with travel, accommodation, cancellation and theft or damage to personal belongings.

The organizers reserve the right to amend any part of the Conference programme or arrangements, if necessary. In the very unlikely event that it is necessary to cancel any of the Conference arrangements, an appropriate refund will be made and thereafter the liability of the organizers will cease.

Passport and Visa requirements for Malaysia

It is the responsibility of all participants to check their passport and visa requirements. Please contact the Malaysian embassy or consulate in your country if in doubt about requirements. In some cases, letters of invitation from Aqua~Media in the UK and one of our partner organizations in Malaysia may be necessary. The process could take several weeks, so **we strongly urge participants requiring visas to start the application process in good time.** If you require a letter of invitation to facilitate your visa application, please let us know at the time of registering, and provide your full name, date of birth, passport details, and proposed dates of arrival and departure. Letters to assist with obtaining visas can only be provided to registered or invited participants, and these letters do not imply an invitation to the conference without payment of registration fees.

As soon as a registration is confirmed, a number of expenses are incurred by the organizers; therefore the following cancellation conditions apply:

Date cancellation received	On or before 26 October 2020	From 27 October to 23 November 2020	On or after 24 November 2020
Registration for the Conference	10% of fee will be forfeited	50% of fee will be forfeited	No refund
Technical Excursions (Study Tours)	10% of fee will be forfeited	No refund unless place can be resold	No refund
Accommodation	10% of fee will be forfeited	No refund unless place can be resold	No refund

NB: Separate booking conditions apply to the Exhibition Stands, and these will be sent directly to Exhibitors by our Sales & Marketing Department.

CONTACT DETAILS

For enquiries concerning registration and accommodation, contact:

Asia 2020 Secretariat, Event Management Services.
ASIA2020@ems-ltd.org • Tel: +44 1225 460838

For further details of the programme, please contact: Mrs Margaret Bourke at: Hydropower & Dams,
PO Box 285, Wallington, Surrey SM6 6AN, UK.
Tel: + 44 (0)20 8773 7244 • Fax: + 44 (0)20 8773 7255 • Email: asia2020@hydropower-dams.com

Regular updates and on-line registration via: www.hydropower-dams.com



**The online ASIA 2020 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: Asia2020@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 on a USB stick; morning and afternoon refreshments; lunches during the Conference; full social programme. **(until 31 July) US\$ 1125 (from 1 August) US\$1230**

REDUCED DELEGATE FEE For existing subscribers to *Hydropower & Dams*. **(until 31 July) US\$ 1035 (from 1 August) US\$1140**

FEE INCLUDING NEW SUBSCRIPTION TO H&D Six issues from No. 1, 2 or 3, 2020 (*please circle as applicable*) + Atlas + Maps
 (This represents a saving of about 40 per cent on the normal *H&D* subscription rate). **(until 31 July) US\$ 1265 (from 1 August) US\$1370**

SPEAKER FEE Includes all facilities described above for Full Delegates, plus an additional reception on Monday 7 December. 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\$ 820**

ASIA 2020 SMALL HYDRO TRAINING SEMINAR (Full day on Monday 7 December) **US\$ 50**

ASIA 2020 WORKSHOP ON FINANCE (Half day on Monday 7 December) **US\$ 30**

MYCOLD TRAINING: Predictive maintenance for dam assets (Full day on Monday 7 December) **(TBC)**

MYCOLD TRAINING: Erosion and sediment control (Half day on Thursday 10 December) **US\$ 115**

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 7 December). 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.

TECHNICAL TOURS Prices include transportation, meals, guides, entrance fees on sightseeing trips, hotels, and, farewell dinner and final night in KL

Tour A - Sungai Perak cascade development, including the Temenggor, Chenderoh and Kenering dams and hydro plants, a sunset cruise, two nights in the Belum Rainforest Resort, and a farewell dinner and overnight stay at the Shangri-La in Kuala Lumpur

Prices: **US\$ 775** per person for single occupancy in the hotel; **US\$ 655** per person sharing a twin or double room.

Tour B - Kenyir and Terengganu developments, including Kenyir dam, Puah dam and the Hulu Terengganu hydro complex, cultural visits, an elephant sanctuary, flight back to KL, followed by a farewell dinner and overnight stay at the Shangri-La.

Prices: **US\$ 725** per person for single occupancy in the hotel; **US\$ 670** per person sharing a twin or double room.

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

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.

ASIA 2020 ACCOMMODATION IN KUALA LUMPUR

Rooms have been reserved at conveniently located hotels, which have been visited by our event management team to check on comfort and amenities. Breakfast is included in the prices at all of them, and the details below show some of the main features, and distances from the ASIA 2020 venue. If you would like to stay at one of these hotels, please make you book using our on-line system, at the time of registration.



Shangri-La

The luxurious 5* Shangri-La hotel is the venue for the ASIA 2020 Conference and Exhibition. Surrounded by lush tropical gardens, the hotel has 8 restaurants and bars, a health club, spa and swimming pool, as well as state-of-the-art conference facilities. The hotel is close to the business district, and rooms offer impressive views across the city. The hotel offers free WiFi, and 24 hour room service. A wide range of hot and cold dishes is available at the breakfast buffet, which is included with the ASIA 2020 room rates.

The Chairpersons' and Speakers' welcome dinner, as well as the ASIA 2020 Welcome Reception will take place in different areas of the Shangri-La.

Executive single room: \$145 per night
Price per person sharing a double or twin executive room: \$78



Concorde

The 4* Concorde hotel is part of the Shangri-La Group, and is conveniently located very close by, so within easy walking distance of the ASIA 2020 conference centre. It has 6 restaurants, and free WiFi is available throughout. There is an outdoor swimming pool, fitness centre, and a shopping arcade. Secretarial services and a travel agency service are available in the business centre. Rooms are spacious, elegantly furnished and quiet.

Single occupancy: \$82 per night
Price per person sharing a double or twin room: \$41



Oasia Suites

The 4* Oasia suites are located about 8 minutes' walk from the Shangri-La. The suites overlook the KL Forest Eco Park. There is a rooftop garden and swimming pool, and a 24 hour gym. The amenities in the room include a small kitchenette, so that drinks and snacks can be prepared. There is also an on-site restaurant. Free WiFi is available throughout the building.

Single occupancy (deluxe): \$75 per night
Per person sharing a (deluxe) double or twin room: \$40

Hotel Royal

This hotel is an 18 minute journey from the conference venue, including a 5 minute walk to the MRL (Monorail) and two stops to Butik Bintang. The monorail runs approximately every 6 minutes. The 20-storey high, stylish central hotel is well equipped, including internet



broadband and free WiFi, and is located in the heart of Kuala Lumpur's Golden Triangle. There is an indoor swimming pool

Single occupancy: \$56 per night
Price per person sharing a double or twin room: \$28

Travelodge

The 4* Travelodge City Centre hotel, which was completely renovated and upgraded in December last year, has a wide range of modern amenities and is close to the main transportation hubs and the city centre. The ASIA 2020 venue can be reached in less than 20 minutes. There is a station 2 minutes from the hotel, the train makes two stops, and there is then an 8 minute walk to Shangri-La.

Single or double occupancy (Superior room): \$42 per night
Triple family room: \$65 per night



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