

Program Announcement Document

IAHR-ASIA 2021

3rd IAHR Symposium on Hydraulic Machinery and Systems

November 22–23, 2021
Hotel Yak & Yeti, Kathmandu



Pharpping Hydropower



Lumbini



Pelton Turbin at Kathmandu University



Mt. Everest



Chilime Hydropower

Organized By :
Turbine Testing Lab (TTL)
Kathmandu University
Dhulikhel, Kavre



In Association With :
IAHR-ASIA



International Association
for Hydro-Environment
Engineering and Research

Hosted by
Spain Water and IWHR, China

WELCOME MESSAGE

Nepal, a country of Mount Everest, country of Himalayas, a country of Lumbini, birth place of Lord Buddha, a country of Janakpur, birth place of Lord Sita and a country of extraordinary natural beauty welcomes all Researchers, Academicians and Professionals around the world for 3rd IAHR-Asia Symposium on Hydraulic Machinery and Systems, November 2021 in Kathmandu.

Nepal lies in South Asia between two large countries: China and India. The Himalaya which runs east-west all along the length of the country in the northern border can be seen as the 'water tower' of Asia. Together with Himalayas, Nepal has regular rainfall pattern throughout the year for perennial supply of surface water. Himalayas, rainfall and natural mountain topography provides tremendous opportunity of hydropower development in Nepal. Nepal has identified more than 84000 MW of hydropower capacity, but even though first hydropower project started more than hundred years ago, very less projects are developed and utilized so far. Nevertheless, this gives an opportunity for present and future generation as Nepal is a vibrant place for hydropower development at the moment.

Nepal has unique challenges of operation of Hydropower due to large quantity of sediment present in rivers and reservoirs. The damage of hydro-mechanical components exposed to sediment is severe and a significant revenue is lost every year in repair and maintenance of these components. Researchers, academicians and scientists have great responsibility to solve sediment induced problem to make hydropower

economically feasible. This sort of opportunity and problem is not only in Nepal but it is there in all countries in Hindu-Kush region connected by Himalayas starting from Afghanistan to Myanmar.

Turbine Testing Lab at Kathmandu University is serving as hub for researchers, academicians and industry to solve the problems in hydraulic turbines and connect all stakeholders together.

TTL is also serving as a platform for international partners to contribute

for hydropower development in Asian region, make hydropower as economically competent source of energy compared to other source, mitigate environment pollution and positively contribute to climate change and solve the problems of hydropower industry specially focusing on sediment induced erosion.



TTL and Nepal is really proud and glad for getting opportunity to host 3rd IAHR-Asia Symposium on Hydraulic Machinery and Systems, November 2021 in Kathmandu. It will really strengthen existing network and also create new network of all stakeholders.

We would like to welcome researchers, academicians and business professionals interested in Hydraulic Machinery and Systems in Nepal in November 2021. Please accept our invitation and enjoy Nepalese hospitality.

Namaste!!!!!!!!!!!!

Prof. Bhola Thapa
Chair of IAHR-Asia 2021

TURBINE TESTING LAB (TTL)

The Turbine Testing Lab at Kathmandu University is a one-of-a-kind laboratory facility established with a vision of aiding hydropower development in Nepal through research, testing and simulation, validation and other technical support. Located at the foothill of Kathmandu University at Dhulikhel, Nepal, the lab operates within the academic environment of the university and collaborates with the industries

respectively. TTL has the capacity to perform prototype test up to 300 kW turbines and perform model test for larger turbines. The lab has provision to have four test rigs at a time, along with notches and water volume measurement arrangements for calibration of measuring instruments. Further, the lab intends to include state of art technologies such as Computational Fluid Dynamics (CFD) and Finite Element Method (FEM) analysis. Test rigs will be installed in the lab to perform the tests of the hydro-mechanical components. TTL is working in close cooperation with NTNU, Norway. Technical support and guidance will be provided by NTNU in further development of TTL. TTL also aims to provide specialized training to engineers and technicians so as to share the output of the lab.

Turbine Testing Lab carries out a lot of research activities regarding turbine design, development and

and private sectors to address technical and societal aspects of hydropower development and turbine-related issues. Capable of testing the turbine upto 300 kW, the lab is equipped with the state-of-the-art technology, computers and spacious office space for academic as well as commercial purpose.

simulations. TTL is working towards becoming a center of excellence for research activities regarding turbines and hydropower in Nepal. To achieve this target, it is rigorously conducting various academic and commercial research activities.

TTL is the only lab in the world which can perform tests with 30 m natural head. The location and topography of KU has provided the opportunity to place an upper reservoir so as to create a 30 m natural head. The lab has two centrifugal pumps each of 250 kW with variable frequency drive (VFD) for each pump. Each pump can produce maximum flow of 0.25 m³/s and maximum head of 75 m. The pumps can be connected in series and parallel combination producing a maximum head of 150 m and maximum flow of 0.5 m³/s



ABOUT IAHR ASIA

Established in 1935, the International Association for Engineering and Research in the Hydro-Environment (IAHR) is an internationally autonomous body of engineers and water experts working in the fields of hydro-environmental sciences and their practical application. It supports and encourages both research and its application while striving to lead to sustainable development, optimization of the management of worldwide water resources, and industrial flow processes. Through engaging in international projects such as UNESCO, WMO, IDNDR, GWP, ICSU, and through collaboration with other water-related (inter)national bodies, the IAHR achieves its aims through a wide range of member events, including working groups, research agenda, congresses, specialty conferences, seminars, and short courses; journals, monographs, and proceedings. In September 2014, during the twenty-seventh IAHR Hydraulic Machinery and Systems International Conference, the IAHR Academic Committee announced the establishment of the IAHR Hydraulic Machinery and Systems in Asia Working Group (AWG-IAHR) to align with the direction of hydropower production in Asia. The

IAHR consists of 3 academic sessions covering its 16 technical committees, the IAHR AWG belongs to the Hydraulics Committee (IAHR Hydraulics), one of the 6 Water Conservancy Machinery Committees, and the Systems Committee (Committee on Hydraulic Machinery and Systems). The international conference, held every two years, has the utmost influence in the field of hydraulic machinery.

Professor Wang Zhengwei, as head of this working group, coordinated IAHR of the Asian Hydraulic Machinery Association at Tsinghua University with the first AWG-IAHR Symposium on Hydraulic Machinery and Systems on 16-19 November 2017. After two years, representing IAHR Asia Working Group(AWG) IAHR-Asia 2019 was held on 24-25 September 2019 in Busan, Korea chaired by Prof. Young-Ho LEE. Following the convention of organizing the IAHR-Asia conference every two years, the third edition of its kind will be held as IAHR-Asia 2021 in Kathmandu, Nepal organized by the Turbine Testing Lab of Kathmandu University in November 2021 chaired by the vice-chancellor of the Kathmandu University Prof. Bhola Thapa.

PROGRAMS

Abstracts are now invited on the following topics. Please go through the conference website : iahr-asia2021.ku.edu.np/call-for-abstracts/

Programs :

- Hydraulic turbines
- Pumps
- Pump-turbines
- Small and micro hydropower
- Computational and Experimental technique
- Sediment erosion
- Cavitation
- Vibrations and Fluid-Structure Interactions
- Design Optimization of hydraulic machinery and systems
- Ocean energy (Wave and Tidal, OTEC)
- Sustainable energy and integrated systems
- Green Hydrogen Technologies



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SYMPOSIUM VENUE

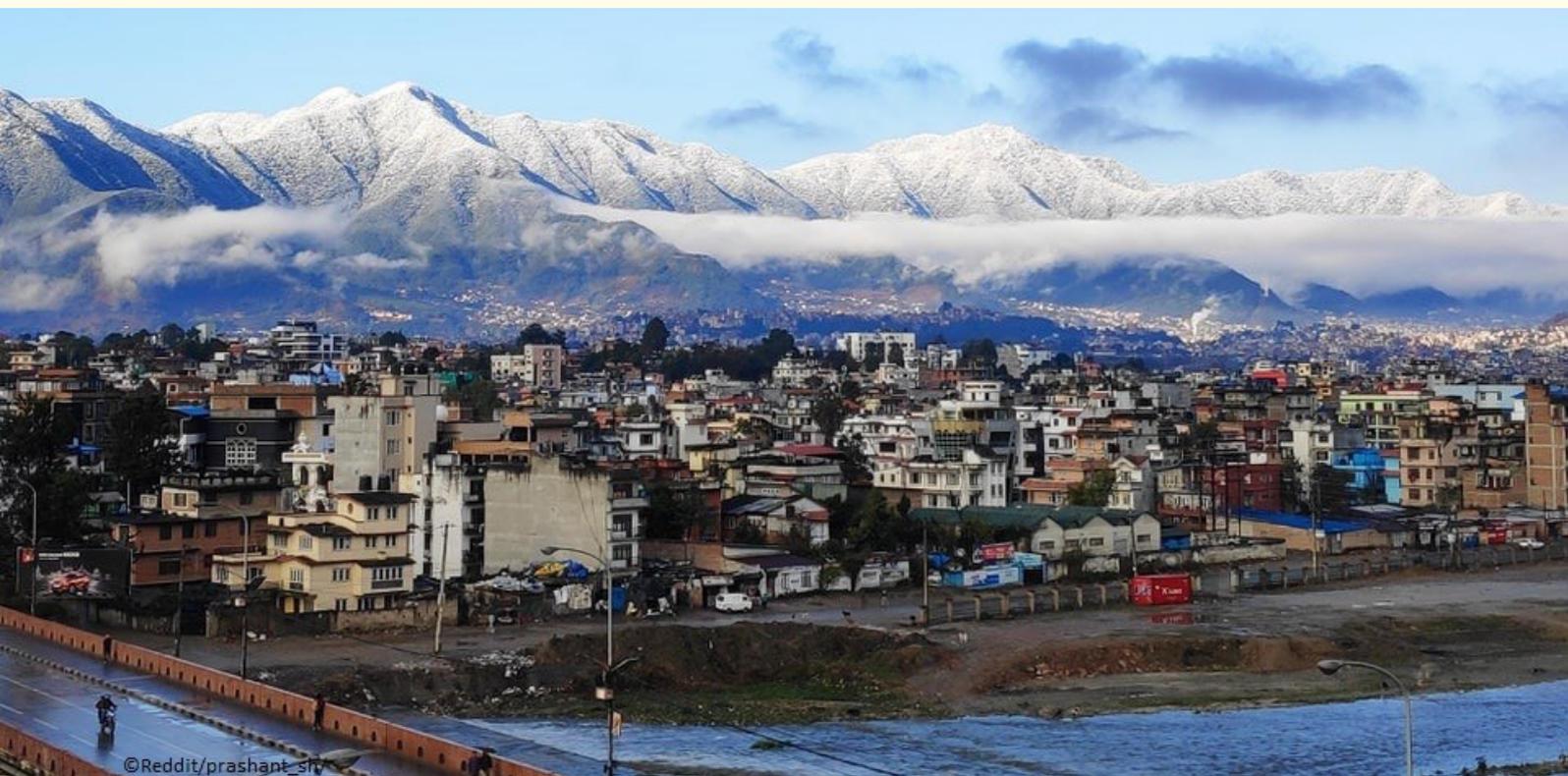
Kathmandu City

Kathmandu is the capital and largest city of Nepal, with a population of around 1 million. Also known as the city of temples, the city stands at an elevation of approximately 1,400 metres (4,600 feet) above sea level in the bowl-shaped Kathmandu valley in central Nepal. The valley was historically called the “Nepal Mandala” and has been the home of the Newar people, a cosmopolitan urban civilization in the Himalayan foothills. The city was the royal capital of the

top ten upcoming travel destinations in the world by TripAdvisor, and ranked first in Asia. The city is considered the gateway to the Nepalese Himalayas and is home to several world heritage sites: the Durbar Square, Swayambhunath, Boudhanath and Pashupatinath.

Venue : Hotel Yak & Yeti

Hotel Yak & Yeti is a luxury 5-star hotel in the heart of Kathmandu offering sophisticated comfort and elegance in grounds steeped in



Kingdom of Nepal and hosts palaces, mansions and gardens of the Nepalese aristocracy. It has been home to the headquarters of the South Asian Association for Regional Cooperation (SAARC) since 1985. Today, it is the seat of government of the Nepalese republic, established in 2008, and is part of the Bagmati Province.

Kathmandu is and has been for many years the centre of Nepal’s history, art, culture, and economy. It has a multi-ethnic population within a Hindu and Buddhist majority. Religious and cultural festivities form a major part of the lives of people residing in Kathmandu. Tourism is an important part of the economy in the city. In 2013, Kathmandu was ranked third among the

history. Located at fashionable Durbar Marg, Yak & Yeti is just minutes from Kathmandu’s best shops and restaurants and central to all of the city’s sights.



REGISTRATION FEES

Category	Time of payment	Amount
Regular	Until Sept. 30, 2021	\$500
	After Sept. 30, 2021	\$600
Student	Until Sept. 30, 2021	\$350
	After Sept. 30, 2021	\$400
Online Presenters	Until Sept. 30, 2021	\$250
	After Sept. 30, 2021	\$350

**Payment link will be added in August 2021 & will be notified by e-mail*

Fee includes:

- Admission to all sessions
- Admission to exhibition and poster viewing
- All-Conference materials
- Welcome Reception
- Conference Banquet
- Tea/coffee and lunch
- Certificate of Attendance
- The publication fee of papers

IMPORTANT DATES

Abstract submission

- May 23, 2021

Abstract acceptance notification

- June 23, 2021

Submission of full length paper

- August 07, 2021

Notification of final acceptance

- August 23, 2021

Submission of camera ready manuscript

- September 23, 2021

Conference

- November 22-23, 2021

All accepted full-length papers will be published in the Journal of Physics conference series. Furthermore, selected full-length papers among the accepted papers will be recommended by the conference organizing committee to the special issues of SCI(E) journals & Scopus journals for review process if the paper authors apply.

VISA INFORMATION

For the visa information, please visit: <http://www.nepalimmigration.gov.np/page/visa>

An official letter of invitation will be provided upon request.

Please contact at : iahr.asia.2021@ku.edu.np

For the invitation letter request, please include the following details:

- Participant's Full Name and Title
- Name of the Organization (University, Company, etc.) and Department
- Nationality
- Passport Number, Dates of Issue and Expiry
- Dates of Stay
- Date of Birth
- Address of the Organization and Residence
- A valid email address

COMMITTEES

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KMOU (Co-Chair)
3. Prof. Zhengwei Wang
Tsinghua University (Co-Chair)
4. Prof. Chisachi Kato
Tokyo University, (Co-Chair)

Local organizing committee

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2. Dr. Sailesh Chitrakar (Secretary)
3. Dr. Damber Bahadur Nepali (Advisor)
4. Prof. Hari Prasad Neopane (Advisor)
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