YEARS OF
IIT ROORKEE
Estd. 1847

National Institute of Hydrology
राष्ट्रीय जल विज्ञान संस्थान
आपो हिष्टा मयोभुवः

2nd ROORKEE WATER CONCLAVE

March 02 - 04, 2022

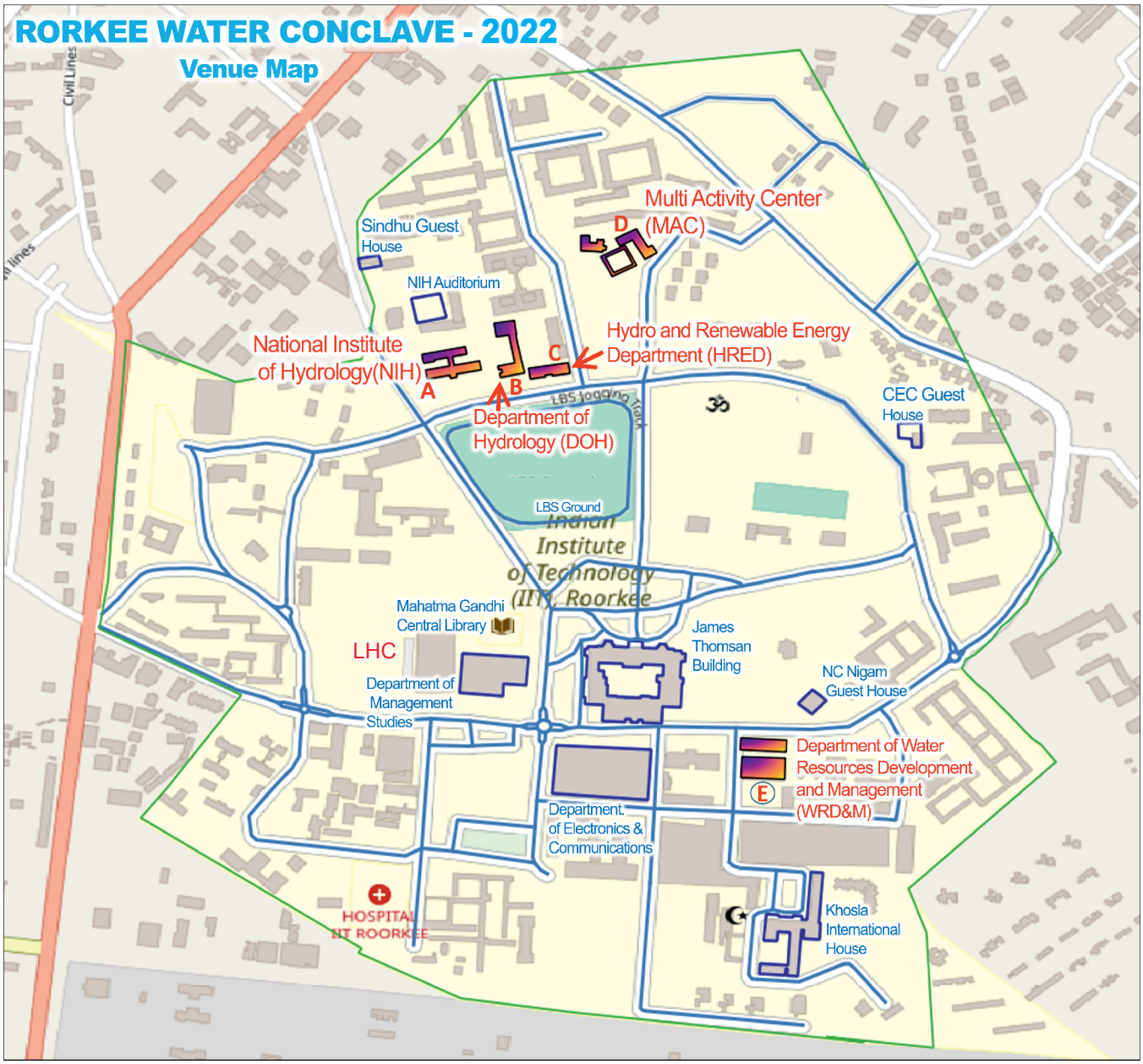
PROGRAMME

Organised by

Indian Institute of Technology Roorkee
Roorkee

National Institute of Hydrology
Roorkee

India


RORKEE WATER CONCLAVE - 2022
Venue Map
Civil Lines
Sindhu Guest House
NIH Auditorium
Multi Activity Center (MAC)
D
National Institute of Hydrology(NIH)
A
B
C
Hydro and Renewable Energy Department (HRED)
Department of Hydrology (DOH)
LBS logging track
CEC Guest House
LBS Ground
Indian Institute of Technology (IIT), Roorkee
Mahatma Gandhi Central Library
LHC
Department of Management Studies
James Thomsan Building
NC Nigam Guest House
Department of Water Resources Development and Management (WRD&M)
E
Department of Electronics & Communications
HOSPITAL IIT ROORKEE
Khosla International House

Venue : Lecture Hall Complex (LHC-2)

Programme at a Glance

Day	Date	9.00 - 11.00	11.00 - 11.30	11.30 - 13.30	13.30 - 14.30	14.30 - 16.00	16.00 - 16.30	16.30 - 19.00
1	March 02, 2022	**9.00-10.00 Registration/Link open to Join** **10.00-11.00 Inaugural Session (***Ganga Hall)*	Tea Break	**Plenary Session-I** *(Ganga Hall)*	Lunch	**Plenary Session-II** *(Ganga Hall)*	Tea Break	**Plenary Session-III** *(Ganga Hall)*
2	March 03, 2022	**8.00-11.00 (Parallel Session)** **8.00-9.30 - Technical Session-I** Theme A: Education, Practice and Training *(Ganga Hall)* Theme B: Water Resource Management *(Krishna Hall)* **9.30-11.00 - Technical Session-II** Theme C: Water Quality and Health *(Ganga Hall)* Theme E: Policy and Governances *(Krishna Hall)*		**Plenary Session-IV** *(Ganga Hall)*		**Plenary Session-V** *(Ganga Hall)*		**Plenary Session-VI** *(Ganga Hall)*
3	March 04, 2022	**8.00-11.00 (Parallel Session)** **8.00-9.30 - Technical Session-III** Theme D: Hydrology and Climate Change *(Ganga Hall)* Theme F& H: Water Disaster and Management & Eco Hydrology *(Krishna Hall)* **9.30-11.00 Technical Session-IV** Theme D: Hydrology and Climate Change *(Ganga Hall)* Theme G: Energy, Food and Agriculture *(Krishna Hall)*		**Special Session On National Mission for Clean Ganga** *(Ganga Hall)*		**Plenary Session-VII** *(Ganga Hall)*		**16.30-17.30** **Valedictory Session** *(Ganga Hall)*

Ganga Hall (L2-103) ***Krishna Hall (L2-104)***

PREFACE

Water scarcity has become one of the burning issues of the 21st century in most countries around the world. Increasing population, rising demands for energy, fresh water, food, amplified variability, extreme hydrologic events, and climate change further exacerbate this problem. Several studies have reported that the average global temperature may rise by 1 to 2°C and could affect water availability for agriculture, food, energy, ecosystem, and other users. It may decrease significantly by the end of the 21st century.

To enhance water scarcity, we must explore the challenge in-depth and adopt an integrated approach: (i) Water resources management strategies like improving agriculture water use efficiency, increasing water supply through water storage, recycling municipal water, precipitation enhancement, flood management, improving water quality (ii) Conservation practices like watershed management, rain-water harvesting, sediment management, ecosystem restoration, recharge area protection, forest management, and other indigenous water efficiency practices (iii) Enhance capacity building through training, outreach, and education and (iv) adoption of new initiatives like selection Sahi-Fasal, Catch the rain, Count every drop, etc. In addition, sound data dissemination policy and pertinent water-related information play a crucial role in every aspect of planning, management, and development of the water resources and supporting Sustainable Development Goal 6 (SDG 6) in the face of emergent uncertain water security challenges.

To support this, the present water conclave is being organized broadly, focusing on "Water Security for Sustainable Development" during March 02 - 04, 2022. In this conclave, 11 National experts and 36 International experts worldwide shall present their keynote address covering various aspects of the theme ranging from management, policy, advanced research techniques, irrigation, water quality, environment, and education. It would provide an opportunity for policymakers, academicians, researchers, students, practitioners, and water managers to share their experiences and knowledge by presenting the fundamental/applied scientific advancements made in water security. The conclave proceedings include abstracts of the eminent keynote speakers and researchers from India and abroad.

We hope that deliberations and interactions during the conclave will provide suggestions or recommendations for preparing holistic frameworks and new ideas towards water security.

Roorkee Water Conclave Committee

About the Roorkee Water Conclave

Indian Institute of Technology Roorkee and National Institute of Hydrology Roorkee are jointly organizing the second edition of **"Roorkee Water Conclave"** during March 2-4, 2022. The first edition of the water conclave was organized on **"Hydrological Aspects of Climate Change"** during February 26-28, 2020, However, the present water conclave is being organized broadly focusing on **"Water Security for Sustainable Development"**. The Conclave would focus on understanding water security and its multiple facets underpin sustainable water resource management and a key component of social development. Detailed and accurate information that can enrich understanding of the causes and determinants of water security in environmental, natural, and societal aspects including climate, environment, food, energy, economy, and public health that is needed to guide decision making around potential adaptation and mitigation solutions.

Keeping in view, the importance of Water Security for Sustainable Development, it is necessary to identify the key issues and challenges, to promote the enactment of UN Sustainable Development Goals (SDGs) globally. Hence, the broad themes of the conclave mentioned below are in agreement with the view:

A. Education, Practices and Training

B. Water Resources Management

C. Water Quality and Health

D. Hydrology and Climate Change

E. Policy and Governances

F. Water Related Disaster and Management

G. Energy, Food and Agriculture

H. Eco-hydrology

Organizing Committee

Chairman

Prof. Ajit K. Chaturvedi
Director, IIT Roorkee

Co-Chairman

Dr. Jaivir Tyagi
Director, NIH Roorkee

Conclave Committee

Prof. Arun Kumar,
Dept. H&RE, IIT Roorkee

Prof. Ashish Pandey
WRD&M, IIT Roorkee

Dr. Archana Sarkar
Scientist E, NIH Roorkee

Prof. Ankit Agarwal
DOH, IIT Roorkee

Dr. Manohar Arora
Scientist E, NIH Roorkee

RWC-2022 Thematic Coordinators

Themes	IITR Faculty	NIH Scientist
A: Education, Practices, and Training	Prof. Brijesh Yadav (Coordinator)	Dr. Sudhir Kumar (Coordinator) Dr. Santosh M. Pingle
B: Water Resources Management	Prof. M.L. Kansal (Coordinator) Prof. C.S.P. Ojha Prof. Z. Ahmad Prof. Deepak Khare Prof P.K. Sharma Prof. D.S. Arya	Dr. Manmohan K. Goel (Coordinator) Dr. Nitesh Patidar
C: Water Quality and Health	Prof. Brijesh Yadav (Coordinator) Prof. A. A. Kazmi Prof Bihu Suchetana Prof. Basant Yadav	Dr. M.K. Sharma (Coordinator) Dr. Rajesh Singh
D: Hydrology and Climate Change	Prof. A. S. Maurya (Coordinator) Prof. S.K. Mishra	Dr. Sanjay K. Jain (Coordinator) Dr. Vishal Singh
E: Policy and Governance	Prof. Sharad K. Jain (Coordinator) Prof. Himanshu Joshi Prof. Bhasker Jyoti Deka Prof. S. P. Singh	Dr. Archana Sarkar (Coordinator) Dr. Jyoti Patil
F: Water Related Disasters and Management	Prof. M.K. Jain (Coordinator)	Dr. A.K. Lohani (Coordinator) Shri J.P. Patra
G: Energy, Food and Agriculture	Prof. S.K. Singal (Coordinator) Prof. Sonal K. Thengane Prof. Sumit Sen	Dr. S.D. Khobragade (Coordinator) Dr. Manohar Arora
H: Eco-Hydrology	Prof. R.D. Singh (Coordinator) Prof. S.K. Mishra Prof. Sanjeev Kumar	Dr. R.P. Pandey (Coordinator) Dr Pradeep Ku. Sachan

RWC-2022 Committees For Different Activities

S.No.	Committee	Coordinator
1	Media & Publicity	1. Prof. Manoj Kumar Jain, Coordinator, IIT Roorkee 2. Dr. L. N. Thakural, Co-Coordinator, NIH Roorkee
2	Session Management	1. Prof. Deepak Khare, Coordinator, IIT Roorkee 2. Dr. Rajesh Singh, Co-Coordinator, NIH Roorkee 3. Prof. Ashutosh Sharma, Coordinator, IIT Roorkee (online) 4. Dr. Gopal Krishna, Co-Coordinator, NIH Roorkee (online)
3	Inaugural and Valedictory Sessions	1. Dr. Sudhir Kumar, Coordinator, NIH Roorkee 2. Prof. A. S. Maurya, Co-Coordinator, IIT Roorkee
4	Catering and Exhibition	1. Prof. S.K. Singhal, Coordinator, IIT Roorkee, 2. Dr. Manmohan Goel, Co-coordinator, NIH Roorkee
5	Accommodation & Transportation	1. Prof. Sumit Sen, DOH, Coordinator, IIT Roorkee, 2. Dr.P.K.Singh, Co-Coordinator, NIH Roorkee 3. Dr. Sandeep Nema, Co-Coordinator, NIH Roorkee
6	Banners/Poster/Signage	1. Prof. M. K. Singhal, Coordinator, IIT Roorkee, 2. Dr. Vishal Singh, Co-Coordinator, NIH Roorkee
7	Hall Management	1. Prof. Bhaskar Jyoti Deka, Coordinator, IIT Roorkee 2.Prof. Ashutosh Sharma, Co-Coordinator, IIT Roorkee 2. Dr. P. K. Mishra, Co-Coordinator, NIH Roorkee
8	Registration	1. Prof. Basant Yadav, Coordinator, IIT Roorkee 2. Prof. Mohit K. Mohanty, Co-Coordinator, IIT Roorkee (online) 3. Dr. Nitesh Patidar, Co-Coordinator, NIH Roorkee
9	Handling of Special Guests	1. Prof. D.S. Arya, Coordinator, IIT Roorkee, 2. Dr. A. K. Lohani, Co-Coordinator, NIH Roorkee
10	Conference Proceedings	1. Prof. Ashish Pandey, Coordinator, WRD&M, IIT Roorkee 2. Dr. Manohar Arora, Co-Coordinator, NIH Roorkee
11	NMCG	1. Prof. Arun Kumar, Coordinator, HRED, IIT Roorkee 2. Dr. Sanjay K. Jain, Co-Coordinator, NIH Roorkee
12	Overall Coordination	1. Prof. Ashish Pandey, WRD&M, IIT Roorkee, 2. Prof. Arun Kumar, HRED, IIT Roorkee

Roorkee Water Conclave 2022

Hands on Session (March 01, 2022; 14:00 - 16:00 IST)

Parallel Session 1:

"Hydrodynamic Flood Inundation Modeling: Trends, Developments, and New Dimensions"

Instructor: Prof. Mohit Prakash Mohanty, Department of Water Resource Development & Management, IIT Roorkee

Parallel Session 2:

"Climate Impact Indicators for Water Security"

Instructors: Dr. Archana Sarkar, National Institute of Hydrology, Roorkee and Dr. Sunil Gurrapu, National Institute of Hydrology, Roorkee

Parallel Session 3:

"Satellite Precipitation Products (SPPs) for Hydrological Modeling: Evaluation and Applications"

Instructor: Prof. Ashutosh Sharma, Department of Hydrology, IIT Roorkee

Instruction for Presenter

Keynote Presentations: The duration of each presentation is 15 minutes. Presentation shall be shared by the presenter in advance (Feb. 28, 2022) with the organising team.

Technical Paper Presentations Guidelines: As a presenter, you should be present when the session you are allocated to starts.The Airmeet platform would be used for the Conclave. Kindly ensure that you are familiar with the platform before the day of your presentation. All presenters are requested to share the presentation in advance;you will receive a link to upload and share your presentation before the event.

Each presenter is allotted a total of 5 minutes for discussing their work. To have a smooth session and make full use of theConclave, keeping the initial pitch within the allotted 5 minutes is paramount. Kindly follow the guidelines and instructions given by the session chairs for a smooth and rewarding experience for all attendees.

1) Ensure that your presentation file is open and ready to be shared before you start sharing your screen.
2) Once the session chair invites you to start presenting, please select "Share" -> "Share Screen".
3) Keep an eye out for prompts from the session chair regarding the time limits.
4) After your presentation, stop sharing your screen so that the next presenter can share their presentation in order.
5) Do check the Q&A for questions regarding your work from the attendees.

Session Matrix

Day -1: March 02, 2022	
09:00 - 10:00	**Registration/Link open to Join**
10:00 - 11:00	**Inaugural Session** *(Ganga Hall)*
11:00 - 11:30	*Tea Break*
11:30 - 13:30	**Plenary Session-I:** *(Ganga Hall)*
13:30 - 14:30	*Lunch*
14:30 - 16:00	**Plenary Session -II:** *(Ganga Hall)*
16:00 - 16:30	*Tea Break*
16:30 - 19:00	**Plenary Session -III:** *(Ganga Hall)*
Day -2: March 03, 2022	
08:00 - 09:30 (Parallel Session)	**Technical Session -I:** *(Ganga Hall)* *Theme A: Education, Practices and Training*
	Technical Session - I: *(Krishna Hall)* *Theme B: Water Resources Management*
09:30 - 11:00 (Parallel Session)	**Technical Session -II:** *(Ganga Hall)* *Theme C: Water Quality and Health*
	Technical Session – II: *(Krishna Hall)* *Theme E: Policy and Governance*
11:00 - 11:30	*Tea Break*
11:30 - 13:30	**Plenary Session -IV:** *(Ganga Hall)*
13:30 - 14:30	*Lunch*
14:30 - 16:00	**Plenary Session -V:** *(Ganga Hall)*
16:00 - 16:30	*Tea Break*
16:30 - 19:00	**Plenary Session -VI:** *(Ganga Hall)*
Day-3: March 04, 2022	
08:00 - 11:00 (Parallel Session)	**Technical Session - III:** *(Ganga Hall)* *Theme D: Hydrology and Climate Change*
	Technical Session - III: *(Krishna Hall)* *Theme F&H: Water Related Disaster and Management & Eco-hydrology*
09:30 - 11:00 (Parallel Session)	**Technical Session - IV:** *(Ganga Hall)* *Theme D: Hydrology and Climate Change*
	Technical Session - IV: *(Krishna Hall)* *Theme G: Energy, Food, and Agriculture*
11:00 - 11:30	*Tea Break*
11:30 - 13:30	***Special Session on National Mission for Clean Ganga :*** *(Ganga Hall)*
13:30 - 14:30	*Lunch*
14:30 - 16:00	**Plenary Session-VII:** *(Ganga Hall)*
16:00 - 16:30	*Tea Break*
16:30 - 17:30	**Valedictory Session:** *(Ganga Hall)*

Ganga Hall (L2 - 103) *Krishna Hall (L2 - 104)*

Keynote Speaker

Name, Affiliation & Biography	Photo

Dr. R. K. Gupta
Chairman & Ex-Officio Secretary to the GoI
CWC, New Delhi

Dr. R.K. Gupta is a graduate in Civil Engineering from Delhi College of Engineering, India. He obtained Master in Technology degree from IIT-Delhi in Applied Mechanics and further Master of Science in Hydraulic Engineering from IHE, The Netherlands. He obtained PhD in the field of Hydraulic Engineering from IHE, The Netherlands.
He is employed with Central Water Commission, India as Chairman. He has over 36 years of experience in the field of water resources development and management especially in planning, design and implementation of hydro power and water resources projects. He has also served as Chairman, Krishna River Management Board looking after the issues related to water sharing and conflict resolution. His expertise is in the field of hydraulic engineering, tunnelling & underground works and hydropower development. His areas of interest are hydraulic engineering, design of dams & hydro-power projects and dam safety aspects.

Shri G. Asok Kumar
Director General, NMCG,
Department of Water Resources, River Development and Ganga Rejuvenation,
Ministry of Jal Shakti, Govt. of India

G. Asok Kumar belongs to the Indian Administrative Services Telangana Cadre 1991 batch. In the past, he has held several important positions such as Joint Secretary in the Ministry of Civil Aviation, Government of India and Director in the Ministry of Power. In the past, he has also served as the Executive Director Projects in National Mission for Clean Ganga.

He has also worked in several other sectors such as infrastructure, urban planning, civil aviation, power, sports, welfare, health, education and IT. He has initiated and completed infrastructure projects like the 162 Kms 8 lane Outer Ring Road, 90 MGD Krishna Phase-2 Drinking Water project, 90 MGD Godavari Drinking Water Project and many other Sewerage Treatment Plants. He has played an instrumental role in setting up India's Aircraft Accidents Investigation Bureau. He is also the founder President of India Smart Grid Forum.

Shri Asok Kumar is also the recipient of several awards such as the SKOCH Award for Public Services 2021, Jal-Mitra award from the Government of Andhra Pradesh and the first Telangana Excellence Award by the Government of Telangana for outstanding work done in Public Administration.

Prof. Subhasis Chaudhuri
Director, IIT Bombay
Email : director@iitb.ac.in

Professor Chaudhuri is presently the Kamalnayan Bajaj Chair Professor in the Department of Electrical Engineering and Professor In-charge of IIT Bombay Monash Academy at IIT Bombay. He earned his BTech degree from IIT Kharagpur in 1985 and MSc from the University of Calgary, Canada in 1987. He completed his PhD from the University of California, San Diego, USA in 1990.

Prof. Chaudhuri has received numerous awards for his research. These include the G. D. Birla Award for Scientific Research, NASI-Reliance Industries Platinum Jubilee Award for Application Oriented Innovation, J. C. Bose National Fellowship, Prof. H. H. Mathur Excellence in Research Award of IIT Bombay, Shanti Swarup Bhatnagar Prize in Engineering Sciences, Swarnajayanti Fellowship and Hari Om Prerit Dr. Vikram Sarabhai Research Award. He is also a Distinguished Alumnus of IIT Kharagpur.

Name, Affiliation & Biography	Photo

Dr. Neelam Patel
Sr. Adviser (Agriculture & Allied Sectors) (Gujarat, Uttrakhand)

Dr Neelam Patel is currently Senior Advisor (Agriculture), NITI Aayog. Before Joining NiTi Aayog she was Principal Scientist at IARI,New Delhi. She did Ph.D from Indian Agricultural Research Institute, New Delhi and M.Sc from Indian Institute of Technology, Kharagpur, West Bangal. She also received many awards/fellowships viz., WATSAVE ANNUAL AWARD 2006 for Young Professional for outstanding contribution to Water Savings and Water Conservation in Agriculture thereby enhancing the beneficial and sustainable use of the critical resource i.e. water, International Commission on Irri; Panjab Rao Deshmukh Outstanding Woman Scientist Award, 2015, Indian Council of Agricultural Research; Dr. Rajendra Prasad Award, 2003, Indian Council of Agricultural Research; Shiksha Puruskar, 2011, Ministry of Human Resource Development; Fellowship, 2020, National Academy for Agricultural Sciences (NAAS).

Shri Ashwin B. Pandya
President,
ICID, New Delhi, India

He (born in 1955), is Secretary General of International Commission on Irrigation and Drainage (ICID). He is an alumnus of Indian Institute of Technology (IIT), New Delhi, he did his M.Tech in Structural Engineering (1983). Er. Pandya has over 40 years of professional experience in water resources and irrigation planning, design, implementation, and financing. He has a sound knowledge of various aspects of irrigation and drainage engineering with a strong competence of leveraging technologies in core areas, especially Information Technology. He specialises in the dam design and related activities.

He has over twenty technical publications in his credit. Er. Pandya began his career with the Central Water Commission (CWC) in 1977 as Assistant Director and later served as its Chairman. In his professional career, he occupied top positions in various Government of India (GoI) offices under the Ministry of Water Resources (MoWR), including Director General, National Water Development Agency (NWDA) and Chairman & Managing Director, National Projects Construction Corporation (NPCC). He also served as the Vice President of ICID for the period 2014-16 and made active contribution to the various activities of the Commission.

Shri Rajiv Ranjan Mishra
Former Director General, NMCG

Shri Rajiv Ranjan Mishra belongs to the Indian Administrative Service (1987 batch). He has spearheaded Namami Gange programme - an integrated river rejuvenation approach, with multiple activities spanning 11 States of the Ganga river basin & creating a model programme for River Rejuvenation in India. He has been responsible for various policy level interventions including the ecological flow notification of 2018 and bringing to completion multiple projects for Aviralta and Nirmalta of River Ganga. He is making pioneering effort for developing a framework for planning for river cities by main-streaming river & water into Urban Master Plans. Presently, he is also In-charge of National River Conservation Directorate looking after rivers outside Ganga Basin.

In Government of India he has earlier worked in the areas of Export Promotion, Training of Civil Servants at National Academy of Administration, Setting up of a Centre for Disaster Management and has been a National level resource person on Incident Response System (IRS)/Incident Command System (ICS). He has also attended many National and International level trainings/ seminars on varied subjects. He also has Certificates in Advanced Studies in Public Administration from Maxwell School, Syracuse University, USA; Public Budgeting from Georgia State University, Atlanta; Project Management from University of California, Berkeley and 'Leaders in Development' program from Harvard Kennedy School, Cambridge, USA.

Name, Affiliation & Biography	Photo

Prof. Alan MacDonald
Lead for Groundwater Resilience and Protection
IMP3 Research Scientist
Email: amm@bgs.ac.uk

Prof. MacDonald is an individual Merit Scientist (IMP3) since 2018. Chair of the Chair International Association of Hydrogeologists Burdon Groundwater Network. He did Doctor of Philosophy from University of Edinburgh. His professional interests include Groundwater development and management, Resilience of groundwater systems to climate change and abstraction, African groundwater and water security, Groundwater and catchment science: flood plain hydrogeology, Groundwater & flooding, upland and glaciated catchments.

Prof. Anik Bhaduri
Australian Rivers Institute, Griffith University, Australia
Director, Sustainable Water Future Programme, Future Earth
Expert Consultant, FAO (Land and Water Division)
Visiting Professor, Indian Institute of Science, Bangalore India
Email: a.bhaduri@griffith.edu.au

Dr. Bhaduri is an accomplished leader in the field of water economics, global water policy and water governance with over 20 years of experience. He is the Director of the Sustainable Water Future Programme (Water Future) of Future Earth. He has also contributed to writing many publications in international journals and as book chapters on various topics in water sectors. As Director of Water Future, Dr. Bhaduri coordinates the large network of more than 400 working group researchers. He facilitates integration and synthesis exercises in collaboration with Water Future's fifteen international and interdisciplinary research groups. He plays a key role in designing and developing key Water Future initiatives like COMPASS, a comprehensive assessment tool for near real-time assessment of global water security, Solutions Lab, and the capacity building activities related to water security.

Prof. Yutaka Matsuno
Department of Environmental Management
KINDAI Research Institute for Agricultural Technology and Innovation
Kindai University, Nara, Japan
Email id: matsuno@nara.kindai.ac.jp

He is a Professor at Kinki University. His research focuses on water management, especially on environmental issues related to water use related to agriculture. Overseas, He is conducting research on irrigation and drainage management mainly in Southeast Asia.

Name, Affiliation & Biography	Photo

Prof. Saskia Keesstra
Wageningen Environmental Research
Netherlands
Email:saskia.keesstra@wur.nl

Prof. Keesstra currently works at the Team Soil, Water and Land Use, Wageningen Environmental Research, Wageningen University & Research. Expertise: Catchment system dynamics: Using Process knowledge for sustainable development. Her research interest is focus on methodology development, with specifically: (i) focussing on upscaling, how point-scale methods can be used on larger spatial scales; and (ii) focussing on downscaling: from landscape to fine resolution, approaching plot scale. The last important step is to disseminate our science to the other researchers from our own and other disciplines; and to the general public.

Prof. Alan Fryar
Director of Undergraduate Studies
Department of Earth and Environmental Sciences,
University of Kentucky, 101, Slone Building, Lexington, KY, USA
Email: afryar1@email.uky.edu; alan.fryar@uky.edu

Alan Fryar received his BS from Duke University (Geology and History, 1984), MS from Texas A&M University (Geology, 1986), and PhD from the University of Alberta (Geology, 1992). From 1992 to 1995, he was Research Associate in the Bureau of Economic Geology at the University of Texas at Austin. Since 1995, he has been a faculty member in the Department of Earth and Environmental Sciences at the University of Kentucky, where he is currently Professor. He is a Fellow of the Geological Society of America (GSA) and past chair of its Hydrogeology Division. He is a member of the American Geophysical Union, the International Association of Geo-chemistry, the International Association of Hydrogeologists (IAH), and the National Ground Water Association. He was a Fulbright Specialist to Pakistan (December 2009–January 2010) and India (February-March 2017) and a Fulbright Scholar to Morocco (January-May 2014). He received the International Service Award from the IAH U.S. National Chapter and the GSA Hydrogeology Division's George Burke Maxey Distinguished Service Award.

Prof. Artemi Cerdà
Soil Erosion and Degradation Research Group (SEDER)
University of Valencia, Department of Geography,
University of Valencia, BlascoIbañez Valencia, Spain.
Email: artemio.cerda@uv.es

He is a Professor at Soil Erosion and Degradation Research Group (SEDER) University of Valencia, Department of Geography, University of Valencia, Spain. He completed his PhD in Infiltration Capacity of Mediterranean Soil from 1989 till 1993. His post-doctorate studies in The Netherlands, Israel, Bolivia and Extremadura researched on the soil hydrology, the impact of climate on geomorphological processes and on the fire and agriculture impact on soils. His position as researched in the Desertification Research Centre and the Pyrenean Institute of Ecology from 1998 till 2002 about the interaction of seeds, plants and erosion, and the land management and soil erosion in the Pyrenees contributed to an open view of the soil erosion processes accelerated by the humankind. Since 2002 as Associated Professor and since 2009 as Full Professor at the University of Valencia.

Name, Affiliation & Biography	Photo

Prof. Biswa Bhattacharya
IHE Delft Institute for Water Education, Westvest
Delft, The Netherlands
Email: b.bhattacharya@unihe.org

He is an Associate Professor of Hydro-informatics in the Hydro-informatics Chair Group of the Integrated Water Systems and Governance at IHE Delft Institute for Water Education. He has a PhD degree in Hydro-informatics from Delft University of Technology and IHE Delft Institute for Water Education. He also holds an MSc degree in Hydro-infomratics (with distinction) from IHE Delft and a BE (Civil) from Indian Institute of Engineering Science and Technology, India. His professional interests include flood risk management, hydrological modelling and forecasting, flood mapping and coastal flooding. He has also long experiences in coordinating and managing research, educational and capacity building projects of national and international standards. He is connected with networks of hydrologists (e.g. International Association of Hydrological Sciences) and international organizations (e.g. WMO and UNESCO) and with their activities. He wrote several publications, journal papers, conference proceedings and chapters in books. Since 2010 he is coordinating a pan- European Masters programme on flood risk management.

Prof. Alison Parker
Cranfield Water Science Institute
Cranfield University at Shrivenham
Shrivenham
Swindon, UK
Email:a.parker@cranfield.ac.uk

Dr. Parker completed a four years masters degree at the University of Oxford in Earth Sciences. This was followed by a PhD at the University of Leeds studying the hydrogeology of the chalk aquifer of East Yorkshire. Dr Parker started as a Research Fellow at Cranfield University in January 2009 and was progressed to Senior Lecturer by October 2019.

Prof. Saurav Kumar
Texas A&M AgriLife and Department of Biological and Agricultural Engineering
Texas A&M AgriLife Research Center at El Paso 1380 A&M Circle, El Paso, Texas
Email: saurav@tamu.edu

Dr. Kumar is a TWRI Faculty Fellow and an Assistant Professor at Texas A&M AgriLife Research and the Department of Biological and Agricultural Engineering. He is based in El Paso, TX. Here, he leads the water system dynamics modeling and resilience research program. His research program concentrates on holistic water systems modeling, with emphasis on how to integrate remotely sensed data and enable convergence among different domains involved. Saurav's past and current research have been in water resources data acquisition, modeling, analysis and presentation. He has also developed several web-based platforms for modeling and analysis.
He received his Ph.D. from Virginia Tech and master's from a joint program by NTU, Singapore and Stanford. Before joining Texas A&M, has worked at the University of Texas at El Paso and in Singapore.

Name, Affiliation & Biography	Photo

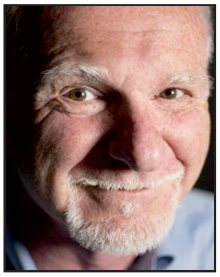
Prof. David M. Hannah
School of Geography, Earth & Environmental Sciences,
University of Birmingham, Edgbaston. Birmingham.
B15 2TT. UK.
Email: d.m.hannah@bham.ac.uk

David M. Hannah is Professor of Hydrology, UNESCO Chair in Water Sciences, and inaugural Director of the Birmingham Institute for Sustainability & Climate Action (BISCA) at the University of Birmingham. He was included in 'Reuters list of the worlds top climate scientists. He was honoured with the prestigious Tison Award (2014) from the International Association of Hydrological Sciences (IAHS); and, in 2019, he became a Royal Society Wolfson Fellow.
David is very active in UNESCO's Intergovernmental Hydrology Programme, formerly UK Representative for the International Association of Hydrological Sciences, and current President of the IAHS-International Commission for Surface Water. He fronted the Birmingham Heroes media campaign on "The Water Crisis". These activities demonstrate his strong commitment to research that matters in the real-world.

Prof. Piet Lens
Environmental Biotechnology at Pollution Prevention and Resource Recovery
Chair Group of the Department of Environmental Engineering and Water Technology
of IHE Delft
Email: p.lens@un-ihe.org

Prof. Lens is established Professor of New Energy Technologies at National University Ireland Galway. He is also Professor Environmental Biotechnology at UNESCO-IHE (Delft, the Netherlands), adjunct professor at Tampere University of Technology (Finland). Prof. Lensobtained his Ph.D. in Environmental Engineering at University Gent (Belgium). He is founding Editor-in-Chief of the Review Journal "Re/Views in Environmental Science and Bio/Technology" and founding editor of the IWA Publishing series "Integrated Environmental Technology". He is the initiator of the Marie Curie Training Site "Sulfur and Metals – HEMEP", the Erasmus Mundus Joint Doctoral programme "Environmental Technologies for Contaminated Soils, Sediments and Solid Waste - (ETECOS^3)", the Marie Sklodowska-Curie European Joint Degree "Advanced biological waste-to-energy technologies –Abwet", the Erasmus Mundus Master Course "International Master of Science in Environmental Technology - IMETE" and joint MSc degree programmes with the Asian Institute of Technology (Bangkok, Thailand) and University of Valle (Cali, Columbia). Besides innovative research, he is also a leader in education and capacity-building, organising numerous study-days, conferences, summer schools and short courses. He has (co-)authored over 750 scientific publications and edited ten book volumes.

Dr. Fabio Masi
Technical Director - R&D, Vice-president Global Wetland Technologies
Chair @ IWA TG "NBSs for Water and Sanitation", IWA Fellow
Email: masi@iridra.com



Fabio Masi is R&D Manager and Technical Director of the Italian engineering company IRIDRA Srl, since 1998 and Vice-President of Global Wetland Technology (companies association) since 2012. His background is a PhD in Environmental Sciences and a MSc in Environmental Chemistry. He's the former Chair of the IWA SG on Wetland Systems for Water Pollution Control. He is the project co-author for over 450 Designs of Constructed Wetlands worldwide and author of more than 90 scientific papers. He has been consulting for Sustainable Water Management projects in Europe, Asia, Africa and South America. He is involved in EC funded projects in the FP5, FP7, MEDA, ENPI-CBCMED, Horizon202, Interreg and Life+ programs.

Name, Affiliation & Biography	Photo

Prof. Daniel D. Snow
Nebraska Water Center
University of Nebraska, Water Sciences Laboratory
Lincoln, NE
Email: dsnow1@unl.edu

Prof. Snow has been an integral part of the UNL Water Sciences Laboratory (WSL) since 1990. At present, he oversees all aspects of the WSL operations and uses analytical chemistry to help understand how water becomes contaminated and what we can do to prevent it. A good part of his work at the WSL involves creating analytical methods for new or "emerging" environmental contaminants including compounds such as steroids, pharmaceuticals, algal toxins, explosives, and pesticides. Snow is also directly involved in the development of new methods to measure and use stable isotopes as tracers to study environmental problems and processes. Snow also advises and mentors a growing number of undergraduate and graduate students at the WSL.

Prof. Karrie A Weber
School of Biological Sciences
Department of Earth and Atmospheric Sciences
University of Nebraska–Lincoln
E-mail: kweber@unl.edu

Dr. Karrie Weber is a highly regarded environmental microbiologist and biogeochemist that serves as the Director of the Microbiology Program and Associate Professor in the School of Biological Sciences with a joint appointment in the Department of Earth and Atmospheric Sciences at the University of Nebraska-Lincoln. She is also a Daugherty Water for Food Faculty Fellow. Dr. Weber developed her expertise at the interface of environmental microbiology, biogeochemistry, and Earth science as research faculty and postdoctoral scholar at the University of California-Berkeley and Southern Illinois University, and as Ph.D. student at The University of Alabama—Tuscaloosa. She has authored 37 papers, one journal cover, and was awarded one U.S. patent as a result of her research bridging microbiology, geology, and hydrology to describe how microbial life underpins chemical cycling in soils, sediments, and aqueous systems and the potential for biotechnological and environmental management applications.

Prof. V. Ramaswamy
Director, NOAA/ Geophysical Fluid Dynamics Laboratory Princeton, New Jersey
Email: v.ramaswamy@noaa.gov

Ram Ramaswamy is Director of NOAA Oceanic and Atmospheric Research's Geophysical Fluid Dynamics Laboratory (GFDL), located in Princeton, NJ. Ram received his Bachelor's and Master's degrees in Physics from Delhi University (India), and Ph.D. in Atmospheric Sciences from the State University of New York at Albany.
Ram has served on the Intergovernmental Panel on Climate Change (IPCC) Working Group I scientific assessments (1992-2021) and Joint Scientific Committee of the World Climate Research Program (2003-2010). He is an author or co-author of over 180 peer-reviewed papers. He was co-chair of the Panel on Climate of Variability and Change, National Research Council (2017) Decadal Survey for Earth Science and Applications from Space, and is a member of the World Meteorological Organization (WMO) Executive Council on Polar and High Mountain Observations, Research, and Services. Ram is a Fellow of the American Meteorological Society (AMS), American Geophysical Union (AGU), American Association for the Advancement of Science, and American Physical Society. He was a member of the IPCC team. He is a recipient of AGU's Charney Lecture, AMS' Houghton, Roberts, and Ross by honors, Distinguished Executive Presidential Rank award, and three-time recipient of the WMO Norbert Gerbier MUMM International award for original scientific papers.

Name, Affiliation & Biography **Photo**

Prof. Ing. Thomas Grischek
Division of Water Sciences,
University of Applied Sciences Dresden
Friedrich-List-Platz 1, 01069 Dresden, Germany
Email: thomas.grischek@htw-dresden.de

Prof. Dr. Ing. Thomas Grischek is Professor of Water Sciences at the Department of Civil Engineering, University of Applied Sciences Dresden, Germany. Dr. Grischek has 28 years of professional and academic experience in groundwater management and water supply. His main research interests are natural water treatment techniques, such as riverbank filtration and managed aquifer recharge, and the removal of iron, manganese, micropollutants and pathogens. He was involved in several national and international research projects including the EU projects SAPH PANI and AquaNES. He has initiated and supported feasibility studies on riverbank filtration in India, Egypt, Thailand and Vietnam. Dr. Grischek has more than 100 publications on water related subjects in peer-reviewed scientific journals, book chapters and international conference proceedings.

Prof. Vijay P. Singh
Department of Biological & Agricultural Engineering & Zachry Department of Civil & Environmental Engineering
Texas A&M University, College Station, Texas, USA
Email:vsingh@tamu.edu

Prof. Singh received his B.S. degree in Engineering and Technology from U.P. Agricultural University – India in 1967, M.S. degree in Engineering from University of Guelph – Canada in 1970 and Ph.D. degree in Civil Engineering from Colorado State University in 1974. Dr. Singh has more than 50 years of experience in Teaching and research works in the field of water resources and hydrology. His Research Interests includes Surface and ground water hydrology, hydraulics, Irrigation Engineering, Environmental Quality and Water Resources. His Principal research topics have encompassed Watershed modeling, Erosion and Sediment Transport in Upland Watersheds, Streamflow Forecasting, Dam Break Analysis, Entropy-Based Modeling, Network Design, Groundwater Modeling, and Hydrologic Impacts of Climate Change.

Prof. Luca Brocca
Director of Research
Research Institute for Geo-Hydrological Protection
National Research Council of Italy, Perugia (Italy)
E-mail: Luca.Brocca@Irpi.Cnr.It

Luca Brocca was born in Genoa, Italy, in 1978. He received the M.Sc. degree in Environmental Engineering and the Ph.D. degree (the Ph.D. thesis, in Italian, can be downloaded here) in Civil Engineering, both with excellence, from the University of Perugia, Italy, in 2003 and 2008, respectively. Since 2003 he received a Scholarship and, successively, a Research Fellowship to carry research at the National Research Council (CNR), Research Institute for Geo-Hydrological Protection (IRPI) of Perugia (Italy). Since (2009) 2019 he is (Researcher) Director of Research at CNR-IRPI. He is author and co-author of 170+ journal referred papers, 87 papers in the last 5 years (2017-2021) and 80+ papers in peer-reviewed conference proceedings/book chapters. His work has been cited 12000 + times, with H-index=58 with Google Scholar. He has published 10 regional and global datasets of soil moisture and rainfall, and 8 software for hydrological applications.

Name, Affiliation & Biography	Photo

Prof. Wouter Buytaert
Dept. of Hydrology and Water Resources
Imperial College London
Email:w.buytaert@imperial.ac.uk

Prof. WouterBuytaert is a Professor in Hydrology and Water Resources at Imperial College London. His research focuses on the interface between hydrological process understanding, water resources management, and sustainable development. Specific societal challenges his work addresses include climate change adaptation, water security, and improving participation in knowledge production. He works extensively in the Global South, with a particular focus on south Asia and the tropical Andes.

Prof.-Ing. Jörg Dietrich
Institutfür Hydrologie und Wasserwirtschaft
Leibniz Universität Hannover
Email: dietrichiww.uni-hannover.de

Dr. Jörg Dietrich is senior researcher at the Institute for Hydrology and Water Resources Management at the Leibniz University Hannover, Germany. He obtained a PhD in Civil Engineering and a Diploma (M. Sc.) in Geoecology. Dr. Dietrich leads the research working group in Water Resources Management of the institute and he is responsible supervisor of PhD and Master theses.
Dr. Dietrich and his working group follow a broad range of topics in research and teaching in Water Science for supporting the sustainable management of water resources. Among the topics are agricultural water management, nature-human interface, integrated water resources management. The scale ranges from field to catchment with case studies in Germany, India, Brazil, Chile, Vietnam and other countries. Methods are focused on systems analytics (simulation, optimization).

Prof. Francisco Munoz-Arriola
Hydroinformatics and Predictive Analytics
Department of Biological Systems Engineering
University of Nebraska-Lincoln, Lincoln, NE
Email:fmunoz@unl.edu

Francisco Munoz-Arriola holds a doctorate in civil and environmental engineering from Duke University and completed two postdoctoral appointments at University of Washington and University of California, San Diego. He has a master's degree in coastal oceanography and bachelor's degree in oceanography from the Universidad Autónoma de Baja California. His research interest focuses on helping agricultural decision-makers more easily upload, transform, store and analyze water, agricultural, fuel consumption and weather/climate data to improve decision-making and our ability to predict the effects of extreme weather events on the sustainability of human activities and ecosystems.

Prof. Ashish Sharma
Civil and Environmental Engineering, UNSW
Email: A.sharma@unsw.edu.au

Prof. Ashish interested in Problems Involving Hydrological Uncertainty. Much of His Research has focussed on impact of climate change and variability on hydrological practice, along with applications related to remote sensing, formulating stochastic approaches, Developing Hydrological Models, and the two big hydrology bread-and-butter problems - Design Flood Estimation + Water Resources Management. He has served as the President of the International Commission of Hydrologic Sciences (IAHS) Commission on Statistical Hydrology (STAHY) Since 2016. Ashish has served on the Australian Research Council's College of Experts Twice.

Name, Affiliation & Biography	Photo

Dr. Ilias G. Pechlivanidis
Project Manager of the EFAS Dissemination Centre
SMHI / Swedish Meteorological and Hydrological Institute
Research and Development / Hydrology
Norrköping, Sweden
Email: ilias.pechlivanidis@smhi.se

Dr. Pechlivanidis is a Senior Researcher, past Scientific Leader, in hydrology and water resources at SMHI and the Project Manager of the Analytics and Dissemination Centre for the Copernicus Emergency Management Service - Floods. He has been the principal investigator focusing on hydrometeorological forecasting, environmental change impacts, science communication, cross-cutting applications of earth observations, early warning and user-tailored water and climate services. He has been coordinating operational (sub-)seasonal forecasting services over Europe and the globe. He is a Member of the World Meteorological Organization (WMO) Research Board, the Co-Chair of the Hydrologic Ensemble Prediction Experiment (HEPEX) scientific initiative, the Chair of the EGU Hydrological Forecasting sub-division, a Reference Member at the Centre of Natural Hazards and Disaster Science (CNDS), and the first Earth Observation Evangelist for the agriculture sector of the FIRE forum.

Prof. Howard S. Wheater
Global Institute for Water Security, University of Saskatchewan, Canada, and Department of Civil and Environmental Engineering, Imperial College London, UK
Email:howard.wheater@usask.ca

Howard Wheater is a world expert in hydrological science and sustainable water resource management. He has extensive international experience studying and advising on flood, water resource and water quality issues. He is also vice-chair of the World Climate Research Programme's Global Energy and Water Exchanges (GEWEX) Project, and leads UNESCO's arid zone water resources program. He holds a PhD in hydrology from Bristol University and a first-class degree in engineering science from the University of Cambridge. He is past president of the British Hydrological Society, is a fellow of the UK's Royal Academy of Engineering, the Institution of Civil Engineers, and the American Geophysical Union, and he holds a life membership of the International Water Academy. He has published over 200 peer-reviewed papers and six books, and has won several academic awards, including the prestigious Prince Sultan Bin Abdulaziz International Prize for Water in 2006.

Prof. Bruno Merz
Head (Hydrology)
TelegrafenbergBuilding C 4, Potsdam
Email: bruno.merz@gfz-potsdam.de

Bruno Merz is Head of the Section Hydrology at GFZ German Research Centre for Geosciences and Professor for Engineering Hydrology and Management of Georisks at the University of Potsdam. His main research interest is flood risk assessment, integrating hazard and vulnerability aspects. He has also published on related topics, such as detection and attribution of hydrological change or monitoring and simulation of hydrological and hydraulic processes. He has coordinated several large-scale research projects on natural hazards, such as the 'German Research Network for Natural Hazards', or the European Training Network 'System-Risk'. He is AGU Fellow and received the EGU Plinius Medal and the IAHS Volker Medal.

Name, Affiliation & Biography	Photo

Prof. Dr Nidhi Nagabhatla
Senior Fellow and Cluster Coordinator
-Climate adn Natural Resources
United Nations University - CRIS
Potterierei 72, BE-8000 Bruges
Email: nnagabhatla@cris.unu.edu

Nidhi Nagabhatla is a Senior Research Fellow and Cluster Coordinator: Climate Change and Natural Resources program at UNU CRIS. In this capacity, she will be coordinating the projects, programs and activities of the cluster while contributing to environmental governance-related activities and outputs collaborating with staff and networks. She is also the Project Leader at UNU CRIS for "GCRF Global Seaweed STAR – Safeguarding the future of Seaweed Aquaculture' a partnership with The Scottish Association for Marine Science (SAMS) focusing on developing countries in East Africa and Southeast Asia.
She is a sustainability science specialist and a systems analyst. With 21 years of work experience, she has led, coordinated, and implemented transdisciplinary projects in various geographical regions of Asia, Africa, Europe, and Americas working with international organisations viz., IWMI, World Fish Centre, IUCN, Asia Pacific Climate Centre, and United Nations University (INWEH) leading research and capacity development initiatives. She also served as the Vice-Chair and Chair of the Steering Board for Young Professional Platform for Agriculture Research and Development (YPARD), FAO from 2011-2018. Currently, she is actively involved with three expert working committees of the UN Decade on Ecosystem Restoration (2021-2030).

Prof. Ing. Axel Bronstert
Campus Golm | Haus 1 | Raum 1.09
Karl-Liebknecht-Str. 24-25
14476 Potsdam-Golm
E-mail:axelbron@uni-potsdam.de

Prof. Ing. Axel Bronsterthas completed a variety of research projects covering the following topics: Hydrological process research; flood research; Hydrology of semi-arid areas; impacts of anthropogenic activities on the hydrological cycle; water management; water quality of surface waters, interdisciplinary & integrated modelling. Hehas contributed to writing many publications in international journals on various topics in water sectors.

Prof. Anil K. Gupta
National Institute of Disaster Management,
Govt. of India, New Delhi.
Email: anil.nidm@nic.in

Dr. Gupta is a sustainability - risk management strategist working in the area of disaster management, environment and climate resilience for more than 25 years with national, sub-national and business administrations. He steered international and national projects of policy research - planning and capacity building and established new approaches, viz. ecoDRR, CCA-DRR integrated mainstreaming, Loss & Damage focused Climate Risk Management Framework, Industrial, Urban, Business continuity resilience and Tools like DIA (with EIA/SEA, Auditing & LCA), Mitigation analysis, PDNA, etc. He is currently full time Professor and Head of Environment Climate and Disaster Risk Management Division in National Institute of Disaster Management (NIDM). He is also Programme Director of the Centre for Excellence on Climate Resilience and implementing projects. He is Expert Team Member of WMO Climate Statement, South Asia Core-Group Member of IUCN-CEM, and Vice-chairman of the Association of Occupational & Environmental Health in India. He is principal editor of the Springer-Nature Book series on Disaster Resilience and Green Growth, and in the board of many research journals.

Name, Affiliation & Biography	Photo

Prof. Robert Boes
Director
ETH Zurich, Laboratory of Hydraulics
Hydrology and Glaciology (VAW), Switzerland
Email: boes@vaw.baug.ethz.ch

Robert Boesis a Professor of Hydraulic Engineering and Director of the Laboratory for Hydraulics, Hydrology and Glaciology (VAW) at the Department of Civil, Environmental and Geomatic Engineering since February 2009. He was born in Aachen, Germany in 1969.During He has published numerous research papers and articles in reputed journals and has various other achievements in the related studies. has extended valuable service towards the scientific community with extensive research work.

Prof. Srinivasulu Ale
Associate Professor (Geospatial Hydrology)
Texas A&M AgriLife Research
(Texas A&M University System)
Email: sriniale@ag.tamu.edu

Dr. Srinivasulu Ale is an Associate Professor and Geospatial Hydrologist at the Texas A&M Agri Life Research Center at Vernon, TX. He obtained his Ph.D. in Agricultural and Biological Engineering from Purdue University, West Lafayette, Indiana, USA in 2009; M. Tech. in Irrigation and Drainage Engineering from G.B. Pant University of Agriculture and Technology in 1992; and B.Tech. in Agricultural Engineering from Andhra Pradesh Agricultural University in 1989. He has led or contributed to various research projects in the USA, India, and the Netherlands over the past three decades. The overall goal of his research program is to develop and evaluate climate-resilient, regenerative agricultural strategies for conserving soil and water, enhancing crop water productivity, and protecting soil and water quality in diverse agroecosystems. He has published 81 journal articles and 3 book chapters, and delivered 137 conference presentations and 21 invited talks. He has been professionally very active in American Society of Agricultural and Biological Engineers (ASABE) and served in various leadership roles. He is currently serving as the Vice Chair of ASABE Annual International Meeting (AIM) Technical Program. He has won several awards at various levels in his career including the ASABE Superior Paper Award (in 2021), Outstanding Associate Editor, ASABE Journals (2020), and the CAST Educational Materials Award (2021).

Professor Rabi H. Mohtar
Director, Water-Energy-Food Nexus Research Group
Texas A&M University, College Station
Email: mohtar@aub.eub.lb

Since 2014, Mohtar is a member of theDepartment of Biological and Agricultural Engineering and the Zachry Department of Civil and Environmental Engineering at Texas A&M. From 2018-2021, Mohtar served as Dean of the Faculty of Agricultural and Food Sciences at the American University of Beirut, where he established the Water-Energy-Food-Health Nexus Renewable Resources Initiative (WEFRAH). He founded and led the Texas A&M Water-Energy-Food Nexus Initiative (2015-18).
In August 2021, his work was recognized by the American Chemical Society's Division of Environmental Chemistry through a symposium in his honor: Toward creating a Water-Energy-Food Nexus Community of Practice (August 2021, Atlanta GA); he is also the 2015 Ven Te Chow Memorial Lecturer of the International Water Resources Association (IWRA) and, since 2018, a Fellow of the American Society of Agricultural and Biological Engineers (ASABE).

Name, Affiliation & Biography	Photo

Prof. Chittaranjan Ray
Fellow, ASCE
Director, Nebraska Water Center
Professor of Civil & Environmental Engineering
Water for Food Daugherty Global Institute
University of Nebraska
Email: cray@nebraska.edu

Prof. Ray is the Director of Nebraska Water Center and Professor of Civil & Environmental Engineering at the University of Nebraska. Besides supervising the functions of Nebraska Water Center, he also supervises the functions of the Water Sciences Laboratory, a Core Research Facility that supports the research of faculty members in the University of Nebraska System. Nebraska Water Center is part of the Robert B. Daugherty Water for Food Institute at the University of Nebraska.
Dr. Ray serves in the leadership capacity mentoring faculty members find funding in water research and help them develop collaboration with other domestic and international partners.Nebraska Water Center serves as an interface between the stakeholders (general public, state and local agencies, and private entities) and the university in solving water related problems of the state through research, education, and outreach.

Prof. Andrew Blakers
School of Electrical, Energy and Materials Engineering
ANU College of Engineering and Computer Science
Australian National University
Engineering Building, Australia
Email: andrew.blakers@anu.edu.au

Andrew Blakers is a Professor of Engineering at the Australian National University. In the 1980s and 1990s he was responsible for the design and fabrication of silicon solar cells with world record efficiencies. He was lead-inventor of the PERC silicon solar cell, which has 90% of the global solar market, cumulative module sales of $110 billion and is mitigating 1% of global greenhouse gas emissions through displacement of coal. Prof Blakers engages in analysis of energy systems with 50-100% penetration by wind and photovoltaics supported by storage. His team developed a comprehensive global atlas of 616,000 off-river pumped hydro energy storage sites.

Prof. Nicola Fohrer
CAU Kiel, Institute of Natural Resource Conservation,
Department of Hydrology and Water Resources Management, Germany
Email: nfohrer@hydrology.uni-kiel.de

Prof. Fohrer is Director of the Institute for Natural Resource Conservation, Hydrology and Water Resources Management, Kiel University (CAU). She has a PhD on soil erosion processes from Technische Universität (TU) Berlin and a Master of Agricultural Sciences, also from TU Berlin. Some of her previous appointments include the position as Executive director of the Ecology Centre CAU Kiel and Interim Professor for hydrology and water resources management at CAU Kiel, as well as Assistant Professor at the Institut of Resource Conservation, Justus-Liebig-Universität Giessen.

Name, Affiliation & Biography	Photo

Prof. Alena Bartosova
Senior Researcher in Biogeochemistry
Research Leader in Water Quality Modeling
Vice-President of ICWQ of IAHS
Email: alena.bartosova@smhi.se

Dr Bartosova is a Senior Researcher and Scientific Leader in hydro-biogeochemistry at the Swedish Meteorological and Hydrological Institute and an expert in water quality and watershed modelling. She currently serves as a Vice-President of International Commission on Water Quality within International Association of Hydrological Sciences. Dr.Bartosova has over 25 years of experience in research in surface water quality assessments, simulation models, and impact analyses. Alena's experiences also include 13 years of working within applied research, supporting governmental programs and developing scientifically-based practical methods to address real-world issues. Most recently she is leading development and application of large-scale water quality models and assessments of climate and societal impacts on water quality.

Prof. Arup Kumar Sarma
B. P. Chaliha Chair Professor of MoWR, India (2009-2018)
Civil Engineering Department
Indian Institute of Technology Guwahati
Email: aks@iitg.ac.in

Prof. Sarma is a Professor and former Head of Civil Engineering Department of IIT Guwahati and Visiting Professor of Asian Institute of Technology, Thailand, was honored with the prestigious B.P.Chaliha Chair Professor Position of Ministry of Water Resources, Govt. of India. With 26 Ph.D. research scholars, addressing various problems in the field of Water Resources, Prof. Sarma has published more than 150 technical papers. The NPTEL video course on Hydraulic Engineering developed by Prof. Sarma is receiving wide appreciation and entered into top 5 most visited courses. Till date, he has completed 22 sponsored research project and 66 consultancy projects from India and abroad. Member of Advisory Committee of NDMA, Indian National Committee for Climate Change (INCCC), National Coordination Committee of National Institute of Hydrology (NIH), and Expert committee member of NITI Aayog, Prof Sarma is a reviewer for several reputed international and national journals. Dr. Sarma has also devoted himself to the promotion of scientific temperament in the society through music and drama. As an approved lyricist of All India Radio, Prof. Sarma has composed several songs, drama and musical features for All India Radio and Television to bring scientific awareness among masses.

Prof. Shantanu Bhattacharya
Abdul Kalam Technology Innovation National Fellow
Dr.Gurumukh T. and Veena M. Mehta Chair and Professor
Department of Mechanical Engineering, IIT Kanpur
Email: bhattacs@iitk.ac.in

Shantanu Bhattacharya (Ph.D.) is GVMM chair and Professor of Mechanical Engineering at Indian Institute of Technology Kanpur. He served as Head of Design Interdisciplinary program between 2017~2020 @ IIT Kanpur. Prior to this, he completed his MS in Mechanical Engineering from the Texas Tech University, Lubbock, Texas, and a Ph.D. in Bioengineering from the University of Missouri, Columbia, USA. He also completed postdoctoral training at the Birck Nanotechnology Center at the Purdue University. His main research interests are design and development of micro- and nano-sensors and actuation platforms, nano-energetic materials, micro- and nano-fabrication technologies, water remediation using visible lightphotocatalysis process, and product design and development. He has many awards and accolades to his

Name, Affiliation & Biography **Photo**

credit, which includes the Institution ofEngineers Young Engineer Award, the Institute for Smart Structures andSystems Young Scientist Award, the Best Mechanical engineering design award (National Design Research Forum, IEI), fellowship of the Institution of Engineers (India), and Institution of Electronics and Telecommunication Engineering (IETE), NASI reliance Platinum Jubilee Award from the National Academy of Sciences, Dr. R.S. Khandpur Award of IETE and Er. M.P. Baya National Award of the IEI respectively. He is a Senior member of IEEE, a fellow of the Royal Society of Chemistry (UK) and has bagged the prestigious Abdul Kalam Technological Innovation National fellowship from the Indian National Academy of Engineering. He has guided many Ph.D. and master's students and has many international journal publications, patents, books, and conference proceedings.

Prof. Manish Kumar Goyal
JSPS Fellow, Commonwealth Fellow, Erasmus Fellow,
P.E.(Int), Indo-US WARI Fellow, Inspire Fellow
Dept. of Civil Engineering,
Indian Institute of Technology, Indore
Email: mkgoyal@iiti.ac.in

Prof. Goyal is Professor and Dean of Infrastructure Development at Indian Institute of Technology, Indore. He is recently featured in the list of Top 2% scientists in the world (prepared by Stanford University). Also in the top 500, the leading researcher in field of Environmental Engineering (Meteorology & Atmospheric Sciences) in 2020 and 2021. Dr Goyal holds 04 books, 25 book chapters and more than 120 technical research publication in various refereed journals. He serves as an Associate Editor for the ASCE-Journal of Hazardous, Toxic and Radioactive Waste. He has supervised 10 PhD and 08 postgraduates students in last 10 years.

His contribution fetched him Recipient of Prof S N Gupta Memorial Lecture Award, Indian Society of Hydraulics, 2021, Best Researcher of the Year Award 2020 by Institution of Engineers (India), American Society of Civil Engineers (ASCE's) Environmental and Water Resources Institute (EWRI) Visiting International Fellowship (VIF) -2019, Prof R J Garde Research Award, India Society of Hydraulics, 2019, Recipient of American Society of Civil Engineers (ASCE)-Best Theoretical-Oriented Paper Award 2018, NVIDIA GPU Research Grant 2018, IEI Young Engineers Award in Civil Engineering Division, 2017-18, Indo-US WARI Fellowship Award (2016), DST –SERB Young Scientist-fast track grant (2015), Inspire Faculty award, 2014, Erasmus Mundus Interweave Award, Europe 2014, JSPS fellowship award, University of Tokyo, Japan (2013) and Canadian Commonwealth Scholarship Award.

DAY - 1

ROORKEE WATER CONCLAVE SCHEDULE

INAUGURAL SESSION (March 02 2022; 10:00-11:00 IST)

Name	
Shri Gajendra Singh Shekhawat	*Hon'ble Minister for Jal Shakti
Dr. R.K. Gupta	Chairman, Central Water Commission
Shri G. Asok Kumar	Director General, NMCG
Prof. Ajit K. Chaturvedi	Director, IIT Roorkee
Dr. Jaiveer Tyagi	Director, NIH Roorkee

* TBC

PLENARY SESSION –I (March 02 2022; 11:30-13:30 IST)

CHAIRMAN: Shri Ashwin B. Pandya	**CO-CHAIRMAN: Prof. Sunil K. Singal**
Name	**Title of Talk**
Shri Ashwin B. Pandya	Policy and governance: Water conflict, resolution and stakeholders participation
Prof. Anik Bhaduri	Role of green and grey infrastructure in achieving water security
Prof. Ashish Sharma	Sustaining water resources under climate change
Prof. Andrew Blakers	Pumped hydro energy storage and 100% renewable energy
Prof. Nidhi Nagabhatla	Cross border water governance and agenda 2030
Dr. Anil Kumar Gupta	Water and integrated resilience: Envisioning 2047: Quests and Opportunities

PLENARY SESSION –II (March 02 2022; 14:30-16:00 IST)

CHAIRMAN: Prof. Artemi Cerdà	CO-CHAIRMAN: Prof. Brajesh Yadav
Name	**Title of Talk**
Prof. Artemi Cerdà	Soil and water conservation: Problems and solutions
Prof. Bruno Merz	Disastrous river floods: Causes and impacts
Prof. Saskia Keesstra	The role of soil and water in achieving the Sustainable Development Goals.
Prof. Alan MacDonald	150 years of groundwater variation in the transboundary Indo-Gangetic basin
Prof. Wouter Buytaert	Developing and implementing locally-relevant solutions to global water security

PLENARY SESSION –III (March 02 2022; 16:30-19:00 IST)

CHAIRMAN: Prof. V. Ramaswamy	CO-CHAIRMAN: Shri Sunil Kumar, CWC
Name	**Title of Talk**
Prof. V. Ramaswamy	Hydrologic cycle, water and climate change
Prof. Francisco Munoz-Arriola	Climate-resilient water resources and the quest to achieve local-to-global security and sustainability
Prof. Alan Fryar	Isotopic evidence of paleo-recharge to regional confined aquifers in the continental USA.
Prof. Daniel D. Snow	Conserving groundwater quality under intensified agriculture
Prof. Karrie A Weber	Microbial activity and geogenic groundwater uranium contamination
Prof. V. P. Singh	Homotopy-based methods for solving nonlinear equations in water engineering
Prof. Saurav Kumar	The promise of aerial imaging for water resource management

DAY - 2

TECHNICAL SESSION I (03 March, 2022; 8.00 - 9.30 IST)

Theme A: Education, Practices and Training

Venue: *Ganga Hall (L2-103)*

Chairman: Shri R. D. Singh, Former Director, NIH Roorkee
Co-Chairman: Dr. Sudhir Kumar, NIH Roorkee

S.No	Paper ID	Title of Talk	Author(s)
1.	RWC/95	Analysis of water transfer in proposed Sankh - South Koel - Subarnarekha link system	Manmohan Goel and Biswajit Chakravorty
2.	RWC/131	Review of women's contribution in water research in India	Jyoti P. Patil, Archana Sarkar and V. C. Goyal
3.	RWC/67	Comparison of MCDM techniques to identify potential sites for soil and water conservation practices	Bhabesh Das and Vamsi Krishna Vema
4.	RWC/69	Identification of groundwater potential recharge zones for spring revival in the high-altitude regions of north-western Indian Himalayan region using remote sensing and GIS techniques	Rajat Dhiman, Dharam Chand, Renu Lata and Kireet Kumar
5.	RWC/91	Assessment of Bhuli WDN in Dhanbad municipality corporation, Jharkhand, India	Nitish Kumar Gautam, Shantanu Datta and Shibayan Sarkar
6.	RWC/20	Rubberdam as advance water resource solution for river diversion: Chilwa rubber dam- A case study	Abhishek Rajput and Om Jangid
7.	RWC/75	Role of water literacy for urban water management in Indian context	Kriti Trivedi and Divyanshi Vyas
8.	RWC/114	Village Level geospatial framework for identifying rainwater harvesting sites using AHP, WOP, and spatial indices	Dinesh Kumar Azad and A. K. Singh

TECHNICAL SESSION I (03 March, 2022; (8.00 - 9.30 IST)

Theme B: Water Resources Management

Venue: *Krishna Hall (L2-104)*

Chairman: Prof. T.I. Eldho, IIT Bombay
Co - Chairman: Dr. Manmohan K. Goel, NIH Roorkee

S.No	Paper ID	Title of Talk	Author(s)
1	RWC/8	Modelling and streamflow characterization of Gangotri glacier melt stream	Manohar Arora, Kapil Kesarwani, Jatin Malhotra and Sanjay Jain
2	RWC/11	Assessment of hydraulic conductivity of porous media using empirical relationships	Abhishish Chandel, Vijay Shankar
3	RWC/17	Numerical modelling of salt transport in a semi-arid region of district Mewat, Haryana, India	Gopal Krishan, Ravi Kumar, Brijesh Kumar Yadav, M. L. Kansal, Allen Bradley, Surjeet Singh, Marian Muste and Lalit Mohan Sharma
4	RWC/18	Daily streamflow prediction using artificial intelligence Approach	Priyanka Sharma, Surjeet Singh and Survey Sharma
5	RWC/19	Mapping impact of urbanization on natural hydrological cycle of a place using GIS: A case of Varanasi	Aishwarya Dwivedi
6	RWC/24	Estimation of groundwater recharge utilizing remote sensing inputs in unsaturated flow model	Nitesh Patidar, Gopal Krishan and Anupma Sharma
7	RWC/27	Evaluation of gradient and gradient-free optimization techniques in Hydraulic Tomography – application to fractured aquifers	ChintalaSyam, Harmya T. S. and KambhammettuBvn P.
8	RWC/38	Locating suitable sites for recharge basins in upland sandstone formations	Vijaya Kumar S.V. and Srija D.
9	RWC/42	Trends in annual maximum flow series and their relationship with El Niño-southern oscillation	Sanjay Kumar, Sunil Gurrapu, Laxmi Narayan Thakural and Jagdish Prasad Patra
10	RWC/50	Groundwater pricing as a tool for groundwater management: A case of Kanpur city	Kriti Trivedi
11	RWC/76	Spatiotemporal assessment of terrestrial water storage over Indian sub-continent	Shivam Rawat, Abinesh Ganapathy, Ravi Kumar Guntu and Ankit Agarwal
12	RWC/107	Modelling water yield in data-scarce regions of Himalayas towards better implementation of watershed management programs	BhargabnandaDass, Denzil Daniel, Sumit Sen, Manoj Sharma, Anita Sharma and Debashish Sen

TECHNICAL SESSION II (03 March, 2022; 9.30 - 11.00 IST)

Theme C: Water Quality and Health

Venue: ***Ganga Hall (L2-103)***

Chairman: Prof C. S. P. Ojha, IIT Roorkee
Co - Chairman: Dr. M. K. Sharma, NIH Roorkee

S.No	Paper ID	Title of Talk	Author(s)
Keynote Speaker: Prof. Shantanu Bhattacharya "A novel AOP based effluent treatment methodology: Perspective of working in an industrial Setup"			
1.	RWC/15	Assessment and management of fresh-saline groundwater system of southwestern parts of Punjab, India	Gopal Krishan, M. Someshwar Rao, Anju Chaudhary, Rajesh Vashisht and Jaswant Singh
2.	RWC/85	Carcinogenic remnants in the Groundwater - Case study Peeya, Bengaluru	T. P. Chandana, Rizwan J Kudari, Rakshitha S. T. and Tejas K.
3.	RWC/65	Impact analysis of water quality parameters for river Beas, Himachal Pradesh, India	Arunava Poddar, Shrikant Mukate, Kim Vercruysse, Jeroen Meersmans, Adani Azhoni, Brij Bala, Robert C. Grabowski, Ian Holman, Vijay Shankar, Jian Peng, Xiaoyu Wang, Zimo Zhang and Veena Kashyap
4.	RWC/72	Modelling the solute migration through the landfill profile for Gazipur landfill site, Delhi, India	Anjali Bhagwat and Himanshu Jain
5.	RWC/116	A scalable and affordable method for production of graphene oxide: Application in the removal of aqueous uranium	Pushparaj Gandhi Tadavarthi, Suman Gomosta, Soujit S. Gupta and S. M. Maliyekkal
6.	RWC/118	Arsenic interaction with soils of Punjab, India: experiments and geochemical modelling	Hafsa Nazir and Vijay Anand Loganathan
7.	RWC/123	Experimental studies and geochemical modeling of fluoride release from soils of Rajasthan, India	Bhawna Thakur and Vijay Anand Loganathan
8.	RWC/9	Factors impacting the households' decisions for safe drinking water: A study of arsenic affected habitations of Bihar	Sushil Kumar and Diptimayee Nayak
9.	RWC/120	Assessment of groundwater quality integrating with land use land cover and potential risk in Sabarkantha district, Sub catchment of Sabarmati Basin	Tanushree Gupta and Rina Kumari
10.	RWC/36	Groundwater quality evaluation of a semi-arid region for irrigation using Irrigation Water Quality Index (IWQI): A case study of Bemetara district of Chhattisgarh, India	Mohit Kumar, M. K. Sharma and D.S Malik
11.	RWC/43	Drinking water quality prediction using Gaussian process and support vector machine	Hemant Raheja, Arun Goel and Mahesh Pal

TECHNICAL SESSION II (03 March, 2022; 9.30 - 11.00 IST)

Theme E: Policy and Governance

Venue: ***Krishna Hall (L2-104)***

Chairman: Shri K. Vohra, Member, CWC, New Delhi
Co - Chairman: Dr. Sharad Jain, IIT Roorkee

S.No	Paper ID	Title of Talk	Author(s)
Keynote Speakers: Dr. D. S. Chasker "International corporation in water sector " **Ms. Rozemarijn ter Horst** "Data, hydrological models and diplomacy, A reflection on water allocation practices in the Cauvery and the Rhine"			
1.	RWC/21	Water governance in secondary cities: A case study of Kozhikode in Kerela	Mitthan Lal Kansal, Ankit Kumar
2.	RWC/130	Water law & governance floodplain restoration & maintenance	Avdhesh Pratap and Nipun Kaushik
3.	RWC/34	Analysis of aquifer recharge pattern in a watershed in the hard rock region of Telangana State	Abhilash R, Mathew K Jose, Venkatesh B, Pandith Madhnure and Rakesh Chander
4.	RWC/5	Wastewater quality improvement techniques in sugar industries for environmental sustainability	Amar Yekane
5.	RWC/6	Studying the three bills, conflictual federalism and dispute resolution mechanisms in Inter-State water disputes systems in India	Nabeela Siddiqui, TariqueFaiyaz
6.	RWC/63	Promoting gender mainstreaming in water sector: analyzing women's significance in water management and water governance in India	Himani Yadav
7.	RWC/90	Laboratory investigation of salt-water intrusion in coastal aquifers	Rajagopal Sadhasivam, Venkatraman Srinivasan and Indumathi Nambi
8.	RWC/119	Monitoring of Delhi NCR wetland using temporal satellite data, India	Raj Singh and Vara Saritha
9.	RWC/125	Status and prospects of water economics	Mandeep Kaur, Alka Chandrakanta and Mandeep Kaur
10.	RWC/71	Microplastics: Quantification, identification, and its effects on aquatic invertebrates	Apourv Pant and Anjali Bhagwat
11.	RWC/49	Hydrochemical assessment of river Alaknanda, Uttarakhand, India using multivariate statistics	Kunarika Bhanot, M. K. Sharma and R. D. Kaushik

PLENARY SESSION –IV (March 03 2022; 11:30-13:30 IST)

CHAIRMAN: Prof. Yutaka Matsuno CO-CHAIRMAN: Prof.S. K. Mishra	
Name	**Title of Talk**
Prof. Subhasis Chaudhuri	Water Security: IIT Bombay Initiatives
Prof. Robert Boes	Sustainable hydropower as an enabler of the energy transition
Prof. Srinivasulu Ale	Crop simulation models, Big data, and IoT based approaches for enhancing agricultural water use efficiency
Prof. Yutaka Matsuno	Development and assessment of models for prediction of small reservoir water level using deep learning applications
Prof.-Ing. Jörg Dietrich	Simulating irrigation water demand at catchment scale under different climatic conditions by using the models SWAT and SWAT+

PLENARY SESSION –V (March 03 2022; 14:30-16:00 IST)

CHAIRMAN: Prof. Ing. Axel Bronstert CO-CHAIRMAN: Prof. Z. Ahmad	
Name	**Title of Talk**
Prof. Ing. Axel Bronstert	Erosion and sediment transport: an underated threat to water security in semi-arid and mountainous regions
Prof. Biswa Bhattacharya	Understanding morphological changes in the Ganges-Brahmaputra rivers using multi-spectral landsat images in the Google Earth Engine
Dr.Ilias G. Pechlivanidis	Hydro-climatic extremes along the Ganges river regime under present and future conditions
Prof. Alison Parker	Managed aquifer recharge as a method to increase water security
Shri Rajiv Ranjan Mishra	Ganga Rejuvenation Research

PLENARY SESSION –VI (March 03 2022; 16:30-19:00 IST)

CHAIRMAN: Prof. Luca Brocca CO-CHAIRMAN: Prof M. L. Kansal	
Name	**Title of Talk**
Prof. Luca Brocca	Innovative methods for exploiting satellite observations in hydrological applications
Dr. Fabio Masi	Ten years of experience in the application of nature based solutions for a circular economy based approach to the water and wastewater management in the Indian context
Prof. Ing. Thomas Grischek	Riverbank filtration for water quality management
Prof. Chittaranjan Ray	Water Productivity: A meaningful way to address water sustainability in Indian Agriculture
Prof. Rabi H. Mohtar	Developments in the Water – Energy – Food Nexus
Prof. Howard Wheater	Managing trans-boundary water: some recent experience of inter-state disputes

DAY - 3

TECHNICAL SESSION –III (March 04 2022; 8:00-9:30 IST)

Theme D: Hydrology and Climate Change

Venue: ***Ganga Hall (L2-103)***

Chairman: Dr. R. N. Sankuha, Chief Engineer, NWDA, CWC, Hyderabad
Co - Chairman: Dr. R. P. Pandey, NIH Roorkee

S.No	Paper ID	Title of Talk	Author(s)
1.	RWC/13	Dam Break analysis using HEC-RAS model for Kandaleru dam in Andhra Pradesh	Meenakshi Ramola, P. C. Nayak, B. Venkatesh and T. Thomas
2.	RWC/46	Assessment of land-use and climate change effect on streamflow and sediment yield of Bhagirathi basin up to Tehri dam	A. R. Senthil Kumar, Rohit Sambare, Sandeep Kumar Chourasia, Manohar Arora and Nageswara Rao Allaka
3.	RWC/74	Diurnal variations of hydrological and hydro-chemical parameters in the meltwater of Gangotri Glacier, Uttarakhand, India	M. K. Sharma, Manohar Arora, Babita Sharma and Beena Prasad
4.	RWC/77	A study of hydrological parameters of Karnal district, Haryana State, India	Arun Goel and Mridula Sharma
5.	RWC/53	Time series analysis of seven homogeneous rainfall zones using longest instrumental monthly rainfall records	Ashwini Ranade
6.	RWC/22	Hydrological modelling of Bhagirathi river basin using HEC-HMS	TriptiDimri, Shamshad Ahmad and Mohammed Sharif
7.	RWC/23	SWAT modelling of Periyar basin	Akshay Mohan S., Rithwik M., George B. Thomas and Sharan M.
8.	RWC/30	Comparison of Observed and GCM predicted precipitation data for Mula Catchment in Maharashtra, India	B. Venkatesh, P C Nayak, Thomas T, R Abhilash and S Chandrakumar
9.	RWC/78	Multi-scale SST Streamflow connectivity	Abinesh Ganapathy and Ankit Agarwal
10.	RWC/40	Regionalization of flow duration curves	Sanjay Kumar, Jagdesh Prasad Patra, Laxmi Narayan Thakural and Sunil Gurrapu
11.	RWC/55	Evaluation of deep learning-based hybrid models for the soil moisture prediction in a lesser Himalayan catchment	M. K. Nema and Nagashree G. E.
12.	RWC/37	Comparison of state-of-the-art regionalization techniques coupled with SWAT for predicting streamflow in ungauged watersheds in Eastern India (Theme: Water Resources Management)	Ankita Manekar and Meenu Ramadas

TECHNICAL SESSION III (04 March, 2022; 8:00 - 9:30 IST)

Themes F & H : Water Related Disasters and Management & Eco-hydrology

			Venue: ***Krishna Hall (L2-104)***
Chairman: Prof. N. K. Goel, IIT Roorkee **Co - Chairman:** Dr. A. K. Lohani, NIH Roorkee			
S.No	**Paper ID**	**Title of Talk**	**Author(s)**
Keynote Speaker: Prof. Manish Kumar Goyal "Flash drought and its impact on the ecosystem"			
1.	RWC/35	Role of hydropower projects in mitigation of floods and draughts	H. L. Arora
2.	RWC/54	Analyzing the drought teleconnections of India using wavelet coherence	Sreedevi V. and Adarsh S
3.	RWC/106	Flood risk management in lower reaches of Bhedan river, Odisha	Jagadish Patra, Rakesh Kumar, Pankaj Mani and Sanjay Kumar
4.	RWC/110	Urban flood evaluation using Google Earth Engine platform	R. Reshma and Soumendra Nath Kuiry
5.	RWC/129	Disaster (floods and unexpected heavy rainfall) mitigation using GIS	Kushal M.
6.	RWC/48	Springing a surprise in the Himalaya: A case study for an encouraging science-practice collaboration	Jagdish Krishnaswamy, Manish Kumar, Girish Varma, Ashvath Singh, Bhupal Bisht, Bishan Raikwal, Jayesh Desai, Sumit Sen and Himanshu Kulkarni
7.	RWC/31	Mapping of aquaculture and its impact on shallow aquifer in the Godavari delta, Andhra Pradesh, India	Yellamelli Ramji Satyaji Rao, T. Vijay, Sudhir Kumar, Y. Siva Prasad and P. Manikandan
8	RWC/56	A method to assess the influence of spatial variability of rainfall in flood prediction	Indhu D. B. and Vamsi Krishna Verma
9	RWC/51	A mechanistic approach to model photosynthesis in C3 and C4 leaf	Antriksh Srivastava and Venkatraman Srinivasan
10	RWC/66	Impact of simulation uncertainty on flood inundation mapping	Nishanth Mothkuri, Indhu Db and Vamsi Krishna Verma
11.	RWC/82	Disentanglement of compound dry and hot extremes over the homogenous regions of India using a complex network-based multivariate standardized index Approach	Ravi Kumar Guntu and Ankit Agarwal

TECHNICAL SESSION IV (04 March, 2022; 9:30 - 11:00 IST)

Theme D: Hydrology and Climate Change

Venue: *Ganga Hall (L2-103)*

Chairman: Prof. Arup Kumar Sarma, Indian Institute of Technology, Guwahati
Co-Chairman: K. S. Kasiviswanathan, IIT Roorkee

S.No	Paper ID	Title of Talk	Author(s)
Keynote Speaker: Prof. Arup Kumar Sarma "Impact of climate change on freshwater ecosystems-A major concern of water resources management".			
1.	RWC/59	Calibration of a comprehensive hydrological model for Hindon river basin, India	Aradhana Thakur, Anupma Sharma, Yush Chandrakar, Ajay Ahirwar, Anju Chaudhary and Preetu Chandra
2.	RWC/98	Assessment of long-term hydrological response of an urban watershed using SWAT	Preeti Rajput, Manish Kumar Sinha and Suryakant Dewangan
3.	RWC/103	Stable Isotope characteristics of summer monsoon precipitation in Gomati river basin, Ganga alluvial plain, northern India	Sonu Kumar, Narendra Kumar, Munendra Singh, Sandeep Singh and Sudhir Kumar
4.	RWC/2	Forecasting of extreme flood events using different satellite precipitation products and wavelet-based machine learning methods	Pavan Kumar Yeditha, Venkatesh Kasi, Maheswaran Rathinasamy, Ankit Agarwal
5.	RWC/16	Methodological considerations for the collection of air moisture for isotopic analysis	Baljinder Singh, Gopal Krishan, M. Someshwar Rao, Pravesh Singh, Sahir Azam Shad, Shivam Tripathi, Richa Ojha, Rajesh Srivastava and Saumyen Guha
6.	RWC/25	Generation of a hybrid rainfall dataset for Mizoram state using data assimilation techniques	Joshal Kumar Bansal, Deepti Natyan, Vishal Singh, Manish Kumar Nema and Sanjay Kumar Jain
7.	RWC/111	Impact of climate change on hydrology in Thamiraparni river basin	Mittapally Aravind, Drissia T.K. and Bhave Swati
8.	RWC/113	Modelling of existing storm water drainage system of Kozhikode city	Mandala Haritha Chowdary, Drissia T. K. and A. B. Mirajkar
9.	RWC/115	Assessing the impact of land cover and climate change on surface runoff in Mahi Sagar basin	Mithun Choudhary, Mahesh Kumar Jat and Mahender Choudhary
10.	RWC/81	Identifying flood prone zones in Bihar using modelling software	Dev Shree Saini
11.	RWC/108	Components of real time yield and demand in a basin – Keys for redressal of disputes on sharing of water resources of a region	Vijay Kumar Dwivedi
12.	RWC/89	Time varying non-stationary flood frequency analysis for west flowing rivers of Kerala	Meera G. Mohan and Adarsh S.
13.	RWC/97	Study on development of design rainfall for stormwater management system in an urban catchment	Manish Kumar Sinha, Bhupesh Choudhary, Klaus Baier and Rafig Azzam

TECHNICAL SESSION IV (04 March, 2022; 9:30 - 11:00 IST)

Theme G: Energy, Food, and Agriculture

Venue: ***Krishna Hall (L2-104)***

Chairman: Dr. V. M. Chowdary, Director, MNCFC, DAC&FW, Govt. of India
Co - Chairman: Dr. Sunil K. Dubey, MNCFC, DAC&FW, Govt. of India

S.No	Paper ID	Title of Talk	Author(s)
Keynote Speaker: Dr. Neelam Patel, Senior Advisor, NITI Aayog			
1.	RWC/26	Crop water requirement and irrigation scheduling of Rabi crops using CROPWAT 8.0 model for Tawa command in Madhya Pradesh	Shashi Poonam Indwar, T Thomas, Ravi Galkate and Rahul Jaiswal
2.	RWC/29	Evaluation of critical dry spells and supplemental irrigation planning for Chambal basin in western Madhya Pradesh, India	T. Thomas, G Sharma, P. C. Nayak, B. Venkatesh and S. P. Indwar
3.	RWC/52	Spatiotemporal variability and controlling factors of ecosystem's water use efficiency changes in India	Vijaykumar Bejagam and Ashutosh Sharma
4.	RWC/79	Impact of near-future climate change on irrigation water requirement, crop water productivity and yield of Lalat rice cultivar in eastern Odisha	Soumya Behera, C. S. P. Ojha and K. S. Hari Prasad
5.	RWC/12	Assessment of conventional efficiencies for optimal utilization of resources in a command	Rahul Jaiswal, Chanchal Kumari, Ravi Galkate, Anil Lohani
6.	RWC/14	Comparison of Observed and GCM predicted precipitation data for Mula Catchment In Maharashtra, India	B Venkatesh, Purna C Nayak, T Thomas, S Chandrakumar and R Abhilash
7.	RWC/102	Modern water conservation process for thermal power plant 3x660MW North Karanpura Super critical power plant in the state of Jharkahnd, India.	Shibsundar Bala
8.	RWC/122	Potential assessment and design of hydropower plant in Tungabhadra river basin	KuruvaVeerendra, Ruchi Khare and Vishnu Prasad
9.	RWC/100	Media narratives on Transboundary Waters- A comparative case study from South Asia	Ritu Priya, Smriti Tiwari, Abu Touhid Hossain, Luna Thapa, Sahika Aehmad and Keshari Tiwari

SPECIAL SESSION –NAMAMI GANGE (MARCH 04 2022; 11:30-13:30 IST)

CHAIRMAN: Shri G. Asok Kumar, Director, General, NMCG CO-CHAIRMAN: Prof. Ajit K. Chaturvedi, Director, IIT Roorkee		
Time		
11.30 AM	Prof. Ashish Pandey, IIT Roorkee	Welcome Address
11:30 - 11: 40 AM	Director IIT Roorkee	Opening Address
11:40 - 12:20 PM	Director General, NMCG	Namami Gange Program
12:20 - 12:30 PM	Ms Atya Kapley, NEERI	GIS based mapping of Microbial diversity of Ganga River for Ecosystem Services
12:30 -12:40 PM	Shri Manu Bhatnagar, INTACH	Cultural Heritage of River Ganga
12:40 - 12:50 PM	Prof. Venkatesh Dutta, BBAU	Small River Rejuvenation and MNREGA
12:50 - 1:00 PM	Additional Commissioner, MNREGA	
1:00 - 1:10 PM	Dr. Lior Asaf, Embassy of Israel	Water Security and Learnings from Israel
01:10 – 01:15 PM	Prof. Arun Kumar, IIT Roorkee	About IITR Contribution to NMCG
01:15 – 01:30 PM	***Audience Questions***	
01:30 PM	Prof. Ashish Pandey, IIT Roorkee	Vote of Thanks

PLENARY SESSION –VII (March 04 2022; 14:30-16:00 IST)

CHAIRMAN: Prof. Nicola Fohrer	CO-CHAIRMAN: Prof. Sanjeev Kumar
Name	**Title of Talk**
Prof. Nicola Fohrer	Anthropogenic pressures on rivers: A holistic eco-hydrological assessment and mitigation strategies
Prof. David M. Hannah	Water and climate change
Prof. Alena Bartosova	Understanding the interplay between sediment regime and water management structures at a large scale
Prof. Piet Lens	Nature based solutions to improve the water quality of rivers and lakes

VALEDICTORY SESSION (March 04 2022; 16:30-17:30 IST)

Name	
Shri G. Asok Kumar	Director, General NMCG
Prof. Ajit K Chaturvedi	Director, IIT Roorkee
Dr. Jaiveer Tyagi	Director, NIH Roorkee
Prof. Arun Kumar	Professor, HRED IIT Roorkee

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