



SESSION DESCRIPTION FORM 2.

10TH WORLD WATER FORUM

This Session Description Form 2 is for the specified program of the session. Please complete this form no later than **28th of February 2024**.

*The session description 1 (online form) is separately requested for the session coordinators to deliver a concise session outline with the contact info and the logistical requests.

Session Code and Title:

T3D1: Extreme climate and its impact on water infrastructure

Session Coordinators (Name, Position, Organization, email, mobile number):

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Session Description including objectives and expected outcomes (500 words maximum):

Over the past several decades, extreme climate events have resulted in a significant increase in the number of natural disasters (such as drought and flooding) and their socioeconomic damages. Water infrastructures, (e.g., water storage and supply systems, water sanitation and drainage systems) play a critical role in water-related disaster reduction and risk management, and provide important services to people that must be recovered quickly after disaster events. However, extreme climate events have exerted significant impacts on water infrastructures and the potential impacts are expected to become even stronger in the future. Therefore, joint efforts from scientific researchers, engineers, practitioners and stakeholders are needed to mitigate the impacts of extreme climate on water infrastructures.

The objective of this session is to share studies of extreme climate and its potential impacts on water infrastructures across the world. The expected outcome is to identify some potential proper actions on climate-smart water engineering design, policies and management strategies to mitigate the impacts of extreme climate on water infrastructures across local, regional and national scales.

The session includes research topics that focuses on understanding past and future climate change, particularly changes in extreme climate events, and assessing the functionality and performance of a wide range of water infrastructures (water storage, water supply, sanitation and drainage systems) and technologies in the context of global warming.

To mitigate the impacts of climate change and be better prepared for the deep uncertain future, we need urgent actions to improve our water infrastructures and integrate innovative technologies into all water management sectors. This collaborative effort between authorities, stakeholders, and communities is essential to develop and implement effective risk management strategies. Authorities can act urgently by increasing the financial investment in green infrastructure and early warning system. Integrating innovative technologies, such as smart irrigation systems and real-time water quality monitoring, can increase water use efficiency improve water quality and enhance water security.

Projecting future climate conditions in the next 50-100 years requires decision-makers to consider a wide range of factors like advanced rainfall forecasting, land-use changes, and human-nature interactions. Choosing the most relevant variables in this process could introduce great uncertainty due to natural variability and model limitations. Discussing this issue with experts, informed by advanced water management practices from developed countries, can help identify the most influential factors and prioritize research needs. This is crucial for planning water infrastructure, mitigating climate change impacts, and building a more resilient future.

The main discussion may be directed to assess the spatial and temporal scales of climate impacts and the effective way of our water infrastructure to react on extreme climate change in future. Design criteria in hydrological input should take account of the balance between available budget and risk management level.

In more detailed discussions, the forum may discuss the following topics:

1. How can we improve existing water infrastructures to withstand extreme meteorological and hydrological events such as floods and droughts?
2. What are the social impacts of extreme climate events on limited water resources between upstream and downstream? How can upstream communities mitigate these impacts to support downstream populations?
3. How can we integrate predictions of extreme weather events like drought, heatwaves and storms to support the design of new water infrastructures, such as water treatment plants and reservoirs?

Detailed Session plan :

Chaired by Profs. Guoqing Wang and Qinli Yang			
ESTIMATED TIMING	ITEM DESCRIPTION / ROLE	SPEAKERS	SPEAKERS STATUS (OK OR TBC)
3 mins	Welcome speech	Guoqing WANG, NHRI	OK
12 mins	Climate change and dam safety	Hong DUAN, Director general of CHES, China	OK, Invited
10 mins	Monitoring of water infrastructure in Indonesia	Muhammad Adek Rizaldi, MPWH, Indonesia	OK
10 mins	Recent research conducted in 2023 between University of Technology Sydney, Universitas Indonesia, Centre for Regulation, Policy and Governance and Universitas Gadjah Mada as part of at DFAT KONEKSI research grant	Tim Foster, University of Technology Sydney, Australia	OK
10 mins	Evaluation of climate impact on Kanwar Lake and the changing pattern of LULC in the wetland area	Kumar Abhinay, Indian Institute of Technology Roorkee, India	TBC
Chaired by Muhammad Rizky Devianto and Erhu Du			
ESTIMATED TIMING	ITEM DESCRIPTION / ROLE	SPEAKERS	SPEAKERS STATUS (OK OR TBC)
10 mins	Myanmar Water Policy and potential improvement of Dam safety and need for hydraulic infrastructure development	Dr. Khin Ni Ni Thein, Founder and Chair, Myanmar Water Academy	OK
10 mins	TBC	Naseer Gillani, Chair, Development Finance IHRO, Pakistan	OK
10 mins	New approach to assess Climate Change influence increasing	Michel de VIVO, Secretary General of the	OK



	peak flood flows and spillway updating	International Commission On Large Dams	
10 mins	Discussion	speakers and all audience	ok
5 mins	Close remarks	SESSION CHAIRS	ok