



International Association
for Hydro-Environment
Engineering and Research

Supported by
Spain Water and IWHR, China

IAHR World Water Day Forum on “Hydro-environment Engineering and Adaptation to Climate Change” 21 March 2020

IAHR Engagement in UN Water

Angelos FINDIKAKIS, Bechtel Corporation and Stanford University, USA

Tom SOO, IAHR Executive Director



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The UN Water Program

- **Purpose**
 - ◆ Coordination of the United Nations organizations that carry out water and sanitation programs
- **Work**
 - ◆ Informs policy
 - Agenda 2030 for Sustainable Development
 - UN Convention Framework on Climate Change
 - Sendai Framework for Disaster Risk Reduction
 - ◆ Monitors and Reports
 - Data on progress towards different initiatives, e.g. the SDGs
 - ◆ Inspires action
 - Different campaigns, e.g. World Water Day, World Toilet Day



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The UN Water Program

- **Members**

- ◆ More than 30 United Nations agencies
 - UNEP | United Nations Environment Programme
 - UNESCO | UN Educational, Scientific & Cultural Organization
 - FAO | Food and Agriculture Organization of the United Nations
 - IFAD | International Fund for Agricultural Development
 - UNCCD | United Nations Convention to Combat Desertification
 - UNECE | United Nations Economic Commission for Europe
 - UNECA | United Nations Economic Commission for Africa
 - UNIDO | United Nations Industrial Development Organization
 - UNCHR | The United Nations refugee Agency
 - UNICEF | United Nations Children’s Fund
 - CBD | Convention on Biological Diversity
 - and several other agencies ...

(see <https://www.unwater.org/about-unwater/members/>)



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The UN Water Program

- **Partners**

- ♦ More than 30 organizations and associations

- IAHR | Intern. Association for Hydro-Environment Engineering & Research
- IAHS | International Association of Hydrological Sciences
- IWRA | International Water Resources Association
- IAH | International Association of Hydrogeologists
- IWA | International Water Association
- IGRAC | International Groundwater Resources Assessment Centre
- IWMI | International Water Management Institute
- IHA | International Hydropower Association
- GWP | Global Water Partnership
- SIWI | Stockholm International Water Institute
- AquaFed | International Federation of Private Water Operators
- IISD | International Institute for Sustainable Development
- and several other organizations ...

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IAHR Engagement in the UN Water Program

- **Active involvement as a partner since January 2019**
 - ♦ Participation in the semi-annual UN Water meetings
 - Jan 2019, Rome; Aug 2019 Stockholm; Jan 2020 Rome
 - ♦ Contribution to the World Water Development Report (WWDR)
 - Contributed to the 2020 WWDR on “Water and Climate Change”
 - Contributing to the 2021 WWDR on “Valuing Water”
 - Will contribute to the 2022 WWDR on “Groundwater”
 - ♦ Input to the UN Water Strategy 2030
 - ♦ Preparation of a white paper on the contribution of engineering to SDG6 (water and sanitation for all)
 - ♦ Participation in the celebration of World Water Day 2020



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IAHR Engagement in the UN Water Program

- **Other opportunities for IAHR engagement**
 - ◆ Participation in Expert Groups & Task Forces
 - Expert Group on the 2030 Agenda for Sustainable Development
 - Expert Group on Drinking-Water, Sanitation and Hygiene (WASH)
 - Expert Group on Regional Level Coordination
 - Expert Group on Transboundary Waters
 - Expert Group on Water and Climate Change
 - Expert Group on Water Quality and Wastewater
 - Expert Group on Water Scarcity
 - Task Force on Unconventional Water Resources
 - Task Force on Water Action Decade Implementation



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Panel Session

Climate Change & Adaptive Management Challenges & Issues

Chairman: Angelos FINDIKAKIS, Bechtel Corporation and Stanford University, USA

Rapporteur: Tom SOO, IAHR Executive Director



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Climate Change: An Existential Societal Threat

- **Critical condition of the Planet**
 - ♦ Short-term and urgent action needed
 - ♦ Solutions require international collaboration and solidarity
- **IAHR has a role to play**
 - ♦ Mitigation, adaptation and resilience analysis
 - ♦ Information and models to inform policy and action
 - Water supply,
 - Extreme events
 - Sea Level Rise
 - Ecosystem response
- **Nature Based Solutions - Adaptive Management - Smart Systems**





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21 March 2020

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NUMBER 4 / 2019



**GREEN COASTAL
INFRASTRUCTURE**

VALUING MANGROVES SEE PAGE 100
SANDY STRATEGIES SEE PAGE 106
**REPORT FROM THE
WORLD CONGRESS** SEE PAGE 120

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Special Issue on
**CLIMATE CHANGE ADAPTATION
AND COUNTERMEASURES
IN COASTAL ENVIRONMENTS**

 
85
ANNIVERSARY
1935-2020
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 UN WATER
**22 MARCH
WORLD WATER DAY**



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Accounting for Climate Change in Water-Related Issues in Engineering Practice

- **Most infrastructure projects have long lives**
 - ◆ Design must account for conditions decades into the future
- **Freshwater availability**
 - ◆ Critical issue for water supply, irrigation, and industrial and energy generation projects
 - Reliability of operations
 - ◆ Little guidance on the impact of climate change on mean and low (drought) rainfall and runoff around the world
 - ◆ Much more research needed



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Accounting for Climate Change in Water-Related Issues in Engineering Practice

- **Prediction of maximum water levels**
 - ◆ Critical issue for human life and property protection, and for the safety of critical infrastructure
 - ◆ Little guidance on the impact of climate change on site-specific extreme rainfall and extreme streamflows and flooding
 - Often extreme flows are increased by an arbitrary percentage, e.g. 10%
 - ◆ More is available on sea level rise
 - Estimates for different future climate scenarios
 - ◆ Not much exists on the impact of climate change on
 - Storm surge
 - Waves
 - ◆ More research needed



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Panel Session

Participants Presentations

Peter GOODWIN, University of Maryland Center for Environmental Science, USA

Global trends and issues; ecosystem services

Joseph HW LEE, Hong Kong University of Science & Technology, Hong Kong China

Innovative storm water management

Roberto RANZI, University of Brescia, Italy

The IAHR white paper on climate change

Deg-Hyo BAE, Sejong University, Korea

Korean experience on climate change impacts on water resources

Yangwen JIA, Institute of Water Resources & Hydropower Research, China

China perspective on climate change adaptation

Discussion



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Distinguished IAHR Lectures for World Water Day

Lecture 1: **Water security and ecosystem services**

by **Peter GOODWIN**, University of Maryland Center for Environmental Science, USA

Lecture 2: **Scientific and technical issues on climate change adaptation
of Korean water resources**

by **Deg-Hyo BAE**, Sejong University, Korea

Lecture 3: **Advanced technologies for smart water and wastewater
management in future cities**

by **Zoran KAPELAN**, Delft University of Technology, Netherlands