ICWRER Special Session Proposal

2022 International Conference on Water Resources and Environment Research (ICWRER)

**Special Session Title**

***Eco-water Security and Smart Water Management in Large River Basins***

**Session Organizer**

**Chair**

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**Session Description**

The world’s large rivers and their basins are of great importance for providing indispensable services to support human well-being. These large river basins feed human civilization, support growing populations, and constitute diverse landscapes and ecosystems. However, large river basins have suffered irreversible and irreparable changes over the industrial era. Unprecedented growth of the human footprint in the world’s large river basins has been altering all aspects of the river basin systems: landscape, geomorphology, hydrology, biogeochemistry and biodiversity. In addition, accelerating global warming and increasing occurrence of extreme weather events drastically manipulate or even degrade the ecosystem services and functionality of the large river basins. With an unprecedented pace, widespread climate change and intensified human activities have greatly threatened ecological and water (eco-water) security, adaptation strategies, and sustainable development in the world’s large river basins.

Therefore, we propose to organize a special session at the 2022 ICWRER conference by inviting scientists from multidisciplinary research areas to discuss the following topics:

(1) potential threats or risks to ecosystems and water cycling under climate change and

human activities;

(2) emerging theories, methods, and tools for exploring eco-water security;

(3) strategies and recommendations towards eco-water security and smart water management in large river basins.

Invited Speakers:

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| Invited Speaker | Affiliation | Presentation Title |
| PhilippeVan Cappellen | Fellow, Royal Society of Canada Department of Earth and Environmental Sciences, University of Waterloo, Canada  [pvc@uwaterloo.ca](about:blank) | Biogeochemical impacts of river damming: Lessons learned and implications for watershed management |
| Slobodan P.Simonovic | Fellow, Royal Society of Canada Fellow, Canadian Academy of Engineering  Department of Civil and Environmental Engineering, Western University, Canada  simonovic@uwo.ca | Decision support for integrated water resources management – From global change to basin-level impacts |
| Jun Xia | Academician of Chinese Academy of Sciences  Research Institute for Water Security, Wuhan University, China  [xiajun666@whu.edu.cn](about:blank) | Water system approach applied to sponge city construction in China |
| Qiuwen Chen | Head of Center for Eco-Environmental Research,  Nanjing Hydraulic Research Institute, China  [qwchen@nhri.cn](about:blank) | Eco-environmental impacts of cascade dams and adaptive reservoir management in upper Yangtze River |
| Zhe Li | Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences, China [lizhe@cigit.ac.cn](about:blank) | From reservoir greenhouse gas emissions to hydropower carbon footprint: Conceptual framework, methodology, and perspectives |