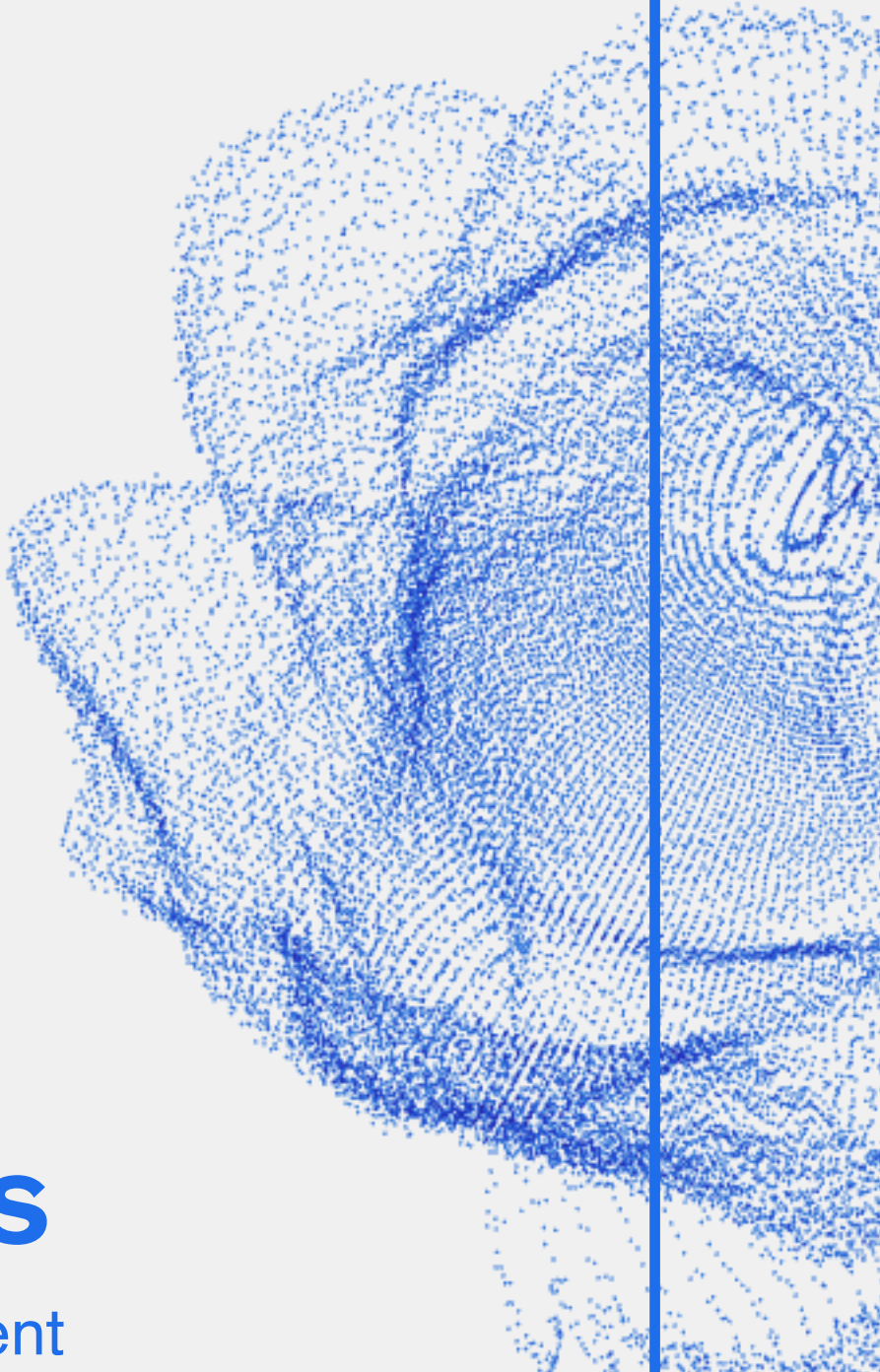**Water Security
and Climate Change**
Conference
—
Gießen, Germany
09–11 October 2024

Call for
Abstracts

Water Management
for Urban-Rural Resilience

WSCC 2024 - Platform for Exchange

The SDG^{nexus} Network, the Centers for Natural Resources and Development (CNRD), the International Network on Sustainable Water Management in Developing Countries (SWINDON), the University of Hohenheim, and the Asian Institute of Technology (AIT) are pleased to invite the community of renowned water and climate change experts to propose abstracts for the Water Security and Climate Change Conference (WSCC), 09 - 11 October 2024 in Gießen, Germany.

Achieving water security under climate change conditions is one of the major challenges faced by society today – both globally and locally. By building bridges between disciplines, sectors and different stakeholders, the conference provides a platform for international exchange. Consequently, interdisciplinary links are revealed and synergies between scientific evidence and societal and political decisions are released. The conference thus contributes to the formulation of sustainable strategies for water resource management in the face of climate change.

The WSCC 2024 is supported by the Exceed program (Higher Education Excellence in Development Cooperation) and follows a successful series of conferences implemented in Thailand, Germany, Kenya, Mexico, Vietnam, and Ecuador between 2016 and 2023.

Background

More than fifty percent of the world's population now lives in urban areas and is predicted to grow in the decades to come. Urbanization is increasing the demand for high quality water for domestic and industrial use and demand is concentrated in distinct locations. Some of them are located in river catchment areas and near groundwater bodies where the availability of water is already so low that there is a risk of supply disruption. The effects of climate change and urban population growth increase the pressure on the water supply in surrounding rural areas. Early involvement is essential in order to be able to utilize the opportunities for preventive measures in due time.

Smart, spatially adaptive, and sustainable water infrastructure planning is required, utilizing new technologies such as artificial intelligence (AI), information technologies such as block chain technology, and data management. For urban areas, smart spatial planning can govern the type, location, phasing and urban design of water-using activities and their associated infrastructural needs. Yet, despite these abilities, spatial planning and water supply planning have not been well integrated. It takes on an integrative role in addressing social, economic, agricultural, and environmental objectives appropriate to climate change adaptation, including both issues of social equity and ecosystems conservation, and that through this integrative role, it can avoid maladaptation, such as exacerbating social vulnerability.

The rural environment plays a crucial role in this context. The provision of a sustainable water supply is becoming increasingly difficult in urban-rural transition areas, as rural ecosystems and water reservoirs are being impacted by population growth and the simultaneous increase in waste and wastewater. The rural urban environment must be thought of in all urban infrastructure planning. It is an integral part of sustainable urban water management since, as previously mentioned, the expansion of urban areas has a massive impact on rural areas as catchment areas for freshwater as well as on agricultural land. Another integral component is the risks of climate extremes and related initiatives on the supply and demand side of water in particular and ecosystem services in general. Climate extremes can jeopardize the function and operation of existing water infrastructure (e.g. through flooding). Disruption to water supplies will pose risks to economic production chains and urban food supplies.

Topics

Theme 1:
Integrated Urban-Rural Water Management (IUWM)

The traditional business-as-usual approach to urban water management has massively complicated and hindered urban development pathways with dynamically designed and adaptable infrastructure and technologies. A forward-looking IUWM approach means a paradigm shift from a traditional set of technologies to a synergistic (dynamic) relationship and solutions for urban agglomerations and the interplay with adjacent rural areas. The successful linkage between the urban system and the watershed requires social participation and integrated management to achieve optimal social, economic and environmental outcomes. This will ensure that the processes and outcomes meet the requirements of sustainability.

The integrated approach to urban-rural water management requires interdisciplinary approaches and the bringing together of components that affect urban water management, such as stormwater and flood protection, wastewater treatment, water supply and solid waste, and rural areas with watersheds, groundwater and agricultural activities. This interaction between urban and rural areas can be seen, for example, in the effects caused by the disproportionate growth of urban areas. For example, the availability and quality of water in the surrounding rural areas can be affected by excessive and uncontrolled water consumption and the discharge of untreated wastewater, which in turn affects the general quality and availability of water.

IUWM is a highly complex field with a multitude of boundary conditions, dynamic processes and optimization requirements, in which individual site conditions (political, administrative, social and technological) must also be taken into account. This is where the use of AI makes sense. The use of AI can close the gap of intelligent supporting infrastructure in integrated urban-rural water management projects and help to realize smart management and monitoring, e.g. with regard to autonomous operation, intelligent inspection, remote control and emergency measures on site. Furthermore, AI can be used to optimize the determination of the Urban Water Security Index as a reliable decision-making criterion for planners in the field of urban water management.

The contributions and discussions related to integrated urban-rural water management will focus particularly on the following aspects:

- Urban-rural continuum and urban spatial planning
- Urban-rural water security
- Big data and AI in urban-rural water management

Theme 2:
Agriculture and Resource-Use Transformation along the Urban-Rural Continuum

The predicted population growth in urban areas worldwide will lead to enormous challenges in the supply and distribution of water, food, and energy. For this reason, rural and urban areas must be interlinked, and strategies developed to ensure the efficient use and exchange of resources. Sustainable agricultural production and landscape management with innovative concepts for urban areas and transition zones are necessary to ensure livelihoods and environmental health along the urban-rural continuum. Land-use concepts should target increased urban primary productivity, shortening resource cycles, efficient water use and increased water quality as well as an improved urban climate in adaptation to increasing temperatures. In this thematic area the conference will particularly focus on how agricultural systems can be interfaced efficiently along the rural-urban continuum regarding resource availability, food production, social peace, health, ecological sustainability, urban climate management and related themes.

The contributions and discussions related to the agriculture topic area will focus particularly on the following aspects of the rural-urban continuum:

- Agricultural production systems in transition between rural and urban areas
- Innovation & resource use in urban agriculture
- Water pathways and food webs affecting markets, people, and livelihoods along the rural-urban continuum

Theme 3:

From Data to Decision: Building a Sustainable Water Future

In a world facing an escalating crisis of water scarcity and the intensifying pressures of climate change, embracing data-driven decision-making has become paramount for optimizing the utilization of this vital resource - guaranteeing equitable access for all. Real-time information from sensor networks, satellites, and citizen initiatives provides valuable insight into the state of our water resources, both in terms of their quantity and quality. Using an open-science approach fosters transparency and collaboration between researchers, policymakers, practitioners, and communities, breaking down silos and promoting knowledge sharing. Besides, effective knowledge management is key. Data curation, analysis, and visualization transform complex information into actionable insights, empowering stakeholders to proactively navigate water challenges. Particularly universities and research institutions play a vital role as hubs for innovation, research, and capacity building, fostering the next generation of water data experts.

However, utilizing the power of data alone is not enough. While open science and knowledge management unlock the insights from diverse sources, we must go further and consider the broader connections within water resource management. This is where "nexus thinking" comes into play. Recognizing the interconnectedness of water with food, energy, and the environment, we can leverage data to develop integrated (e.g., nature based) solutions or implement hybrid approaches that combine cutting-edge technology with traditional methods.

Through combined efforts and the implementation of data-driven approaches, we can achieve optimal water resource management, enhance resilience to challenges, and establish a sustainable future where all have access to this essential resource. Consequently, Theme 3 invites researchers, policymakers, and practitioners to share their insights on data-driven strategies, open science approaches, nexus thinking, and knowledge management.

The contributions and discussions related to information technologies and managing urban water data will focus particularly on the following aspects:

- Sensing Change: Open Data for Regional Water & Climate
- Transforming Data into Action: Knowledge Management for Water Security
- Connecting the Dots: From Data to Water-Energy-Food Solutions

The WSCC 2024 conference planning committee welcomes your abstracts for oral presentations and scientific posters.
The submission period is **01 May – 15 June 2024.**

The WSCC aims to provide ample exchange opportunities. The conference consists of thematic sessions involving different stakeholders, tying the scientific community to policy, industry, and society. Innovating perspectives and dimensions in the current discourse on climate change and water security are particularly welcome, especially presentations combining academic and practical approaches.

Besides, thematic, and interdisciplinary workshops as well as networking spaces will be provided. During expert panel discussions and invited keynote presentations participants will have the opportunity to connect and discuss the latest challenges in the field. Accepted contributions to the conference will be published in the WSCC book of abstracts. In addition, the conference organizers consider publishing a book in which the best submitted contributions (in the form of a full paper) will be published.

Each session will be hosted by prominent organizations, institutions, or experts in relevant fields. The conference will be held in English.

The registration fee is **200 EUR** and includes

- A digital book of abstracts,
- Attendance at all conference sessions,
- Welcome Reception,
- Lunches on 09th – 11th of October,
- Tea/coffee during the breaks.

01 May 2024 Abstract submission portal opens

15 Jun 2024 Abstract submission deadline

01 Aug 2024 Notification of approved abstracts

Abstracts must be submitted online:
www.uni-giessen.de/wscc

In-Person Conference

The WSCC 2024 is planned as an in-person conference. An online participation for presenters is not foreseen. All presenters should be prepared to be at the conference venue in Gießen to present their content during the conference. If accepted, participation must be confirmed through registration by 01 September. A virtual book of abstracts and conference program will be compiled and made available to the participants and through the WSCC website.

Oral Presentations

Oral presentations provide authors with the opportunity to present their work in a thematic session in a brief format. Oral presentations are selected and assigned to a thematic session by the committee based on the submitted abstract.

Poster Presentations

The poster sessions provide an interactive forum for authors to discuss their work. Presenters will be assigned pin boards to present their posters and are encouraged to bring one-page handouts to accompany their posters. Poster presentations are selected by the committee based on the submitted abstract.

Submission Instructions

- All abstracts must be submitted online between 01 May and 15 June 2024
- Abstracts can be submitted as 'Oral or Poster Presentation' or 'Poster Presentation only'
- All abstracts must be submitted through the submission portal in text form
- The following information must be included in the submitted abstract: presentation title, all author(s)' identifying information (including names, degrees, and institutional affiliations), WSCC topics (see list of topics in the submission portal), three to five keywords and narrative text (limited to 1800 characters)
- The conference organization committee may propose an alternative presentation format (open space sessions), based on the available times in the conference program

Criteria For Abstract Selection

Abstracts will be selected by the WSCC scientific committee on the basis of the need to organize a well-balanced program and according to the following criteria:

- Relevance of the presentation for the conference themes
- Potential of the presentation to link science, practice, and decision-making
- Quality of abstract, in terms of content and language
- Originality and innovation
- The introduction text should not exceed 25% of the total abstract. The methods, results, and problem solving approach should denote 75% of the abstract.

Funding

Limited funding is available to support selected presenters in particular from <u>DAC listed countries</u>. The conference organizers will contact potential presenters eligible for funding after the submission deadline to determine the further proceeding. For selected presenters the WSCC2024 may cover, depending on the necessity:

- International travel (round-trip ticket) from the nearest international airport in the country of departure to Frankfurt am Main (FRA).
- Airport transfer to/from the hotel in Gießen by public transport or shuttle.
- The registration fee for the conference.
- Four nights of accommodation (check-in 08th of October, check-out 12th of October) in a hotel selected by the conference organizing team including breakfast.

Please note that the WSCC2024 will NOT cover the following:

- Local transport from current place of residence to the nearest international airport in your country
- Airport taxes, if any
- Visa fee, if any
- Travel health insurance fees
- Daily allowance or boarding that exceeds the meals that are offered during the conference

Spouses/Partners are not supported, but they can attend the conference as participants when paying the conference fee. Travel arrangements for spouses/partners need to be arranged by the participant and will not be organized by the conference organizers.

Committee

SDGnexus Network:	Björn Weeser
CNRD:	Lars Ribbe, Sven Tönsjost
AIT:	Mukand Babel, Victor Shinde
SWINDON:	Andreas Haarstrick
Univ. Hohenheim:	Marcus Giese

Water Security and Climate Change Conference 2024

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09–11 October 2024 Gießen, Germany

Contact

Please do not hesitate to direct any questions you may have regarding the conference to:

wscc@jlug.de

SDG nexus network · Federal Ministry for Economic Cooperation and Development · DAAD exceed Deutscher Akademischer Austauschdienst German Academic Exchange Service · CNRD Centers for Natural Resources and Development · UNIVERSITY OF HOHENHEIM · Technische Universität Braunschweig