Water Security and Climate Change Conference

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Cologne
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Cologne Declaration on **Water Security and Climate Change**

Technology Arts Sciences TH Köln

CNRD
Centers for Natural Resources and Development

International Network on Sustainable Water Management in Developing Countries
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Around 200 experts from around the world convened from 18-21 of September 2017 for a Water Security and Climate Change conference. The participants concluded the following key messages:

Both water security and climate change are urgent challenges facing humankind and need immediate and increasing attention; their importance and the need for action is reflected in recent global agenda and agreements like the SDGs, the Paris Agreement, the Sendai Framework, and the New Urban Agenda.

Water security and climate change are part of immensely **complex and interwoven natural and human systems** and need to be addressed in an integrated manner as climate change is a key driver of future water management, which is central to improving water security and climate change adaptation!

In achieving water security and coping with climate change, the complex relationships of interactions at the local, regional and the global **scales** deserve particular attention. We also require **long term** and integrated planning, exploring the potentials of water as a **renewable resource**.

Education and capacity development are fundamental to achieving water security and climate resilience. We urge to support universities – especially in developing countries – in order to serve as the hub of relevant knowledge, technology and innovation. Efforts are required to enhance interaction among science, practice and policy.

Ensuring water security and managing climate risks pose immense challenges, and we recognise achieving both is only possible through a cross-sectoral approach and **concerted effort** of science, policy, economy and civil society. **Nexus thinking** – beyond the scope of the well-known Water-Energy-Food nexus – needs to be encouraged and have enabling tools provided.

With increasing **urban population**, changing life-styles and industrialisation, ensuring water quality and access to clean water and sanitation is more important than ever. As freshwater resources are threatened by ever increasing urban sprawl, particularly in the developing countries, we need to focus on both conserving freshwater resources as well as investing in innovative, inexpensive and energy efficient technologies to treat and recycle domestic and industrial wastewater. **Groundwater** recharge and recovery can be useful to mitigate salinisation and storage, especially in coastal areas. These are to be achieved through effective collaboration among stakeholders, including the private sector.

The nexus of **human migration**, climate change and environment is highly relevant to analyse the contemporary dynamics of water security. Despite its significant challenges, migration can be perceived as a potential for opportunities to the host community, which can be activated by adaptive and participatory mechanisms through sustainable conflict resolution and regulation.

Disaster risk management is a clear connector of water security and climate change adaptation. We should focus on how water security interventions can contribute to minimising loss and damage from climate change. Significant efforts are warranted to assess impacts of disasters, for example, droughts.

Dialogue and trust building among involved parties and institutions of a **transboundary (surface or groundwater) basin** are a fundamental step towards effective transboundary water management. Transparent and joint actions on monitoring, data and information sharing, and collaborative practices are needed to facilitate informed decision making.

Guidelines on **nature based solutions** including approaches to achieve local participation are required for implementation. We need to develop comprehensive solutions considering ecosystem, engineering and governance based approaches.

Food security is ultimately linked to water security and climate change in two ways: yield of major food crops (quantity) as basis for adequate caloric supply and diet diversity including micronutrient density (quality) within different food sources to avoid malnutrition. While the impact of water scarcity on macronutrients (Fat, Protein, Carbohydrates) production are well documented more research and action is needed regarding impact of climate and water on micronutrient composition of food produce.

Concerted efforts are required to reduce carbon and water footprints of conferences to make them more sustainable.

We need to significantly enhance efforts of collaboration to provide science based solutions to challenges associated with water security and climate resilience. To achieve this, not only do we need more pragmatic and coherent steps taken by the various stakeholders, but also by funding agencies to support the establishment of regional and local science-policy-economy-society interfaces.

The Cologne Declaration was crafted by the participants at the 2017 Water Security and Climate Change Conference.