Session:

STREAMS OF WATER AND INFORMATION: MANAGING WATER SUPPLY, TREATMENT, AND DELIVERY IN THE 21ST CENTURY

Title of talk:

Managing Water for Integrated Climate Water Energy and Food Systems

Jochen Hack, Technische Universität Darmstadt

Abstract

Growing global resource scarcity is demanding more effective integration and coordination of resource use across different use sectors. Especially the water, food and energy sectors are increasingly competing for common resources while rising environmental standards and climate change concerns result in additional resource constraints. These dependencies of water, energy and food production are complex and cross-sectoral. Moreover, the accelerating expansion of renewable energies causes new interlinkages between these sectors that require even more integrated solutions in technologies and management. However, each renewable energy source places specific resources requirements with some energy sources more favorable than others.

This contribution highlights cross-sectoral assessments and management approaches for water, energy and food in order to deal with resource interdependencies and future trends. Water for energy and food, energy for water and food production as well as food (land resources and biomass) for water and energy production will be discussed and case study examples are given. Departing from the water resources sector, solutions on how to combine integrated policy making, planning and engineering solutions in order to avoid competition and increase synergies in resource use are presented. The Ecosystem Service Concept is applied as means to establish new boundaries and to promote cross-sectoral cooperation for integral resource management.