

## DAY 1: Sessions in a Nutshell

Wednesday, 17 May 2017

### **A.1 Wastewater Reuse in Nexus Perspective: Environmental, Economic, and Societal Opportunities**

Wastewater is a critical resource in a circular economy.

- Wastewater sanitation is of high complexity and its implementation requires Institutional stakeholders, lawyer but also transboundary collaboration.
- Waste water recycling in industries leads to higher resource efficiency and increased economic benefits.
- WW reuse leads to a circular economy but changes in the distribution of added-value and restrictions for farmers should be promoted.
- Constructed wetlands (CW) are critical for treatment of waste water especially in developing economies.
- Regulatory measures have to be implemented to increase the acceptancy of the safe use of wastewater and make farmers implement the use of treated WW.

### **B.2 Smart Green Cities and the Water-Soil-Waste-Energy Nexus**

Smart cities are about the nexus between people that governance structure. It is also about small and middle sized cities and not only driven by urbanisation.

- The India case highlights no explicit nexus in energy supply and wastewater treatment. Access to tech and finance is not a problem, but political willingness.
- We need more pilot projects on the Water-Energy-Food Nexus for further development and implementaiton.

A project in Munich has shown what needs to be changed.



### **B.1 Adaptation of Cities to Global Change for Urban Resilience**

Transdisciplinary and collaborative approaches are key for bridging the gap between microclimatic evidence and urban design practices.

- **SPEAKER ABSENT**
- Participatory approaches can shape research priorities and enhance urban resilience applying the Water-Energy-Food Nexus to organic waste management issues.
- A comparative planning process based on broad participation allows breaking down the SDGs to the local level and the formation of contextual objectives.
- AltWater assess current and future urban water supply demands e.g., to fill gaps and make resilience to future changes: by seeking alternative sources.
- Political and topographical differences play a role in climate change adaptation and knowledge transfer is also challenging.
- Question: cities are exploring adaptation but they don't go beyond expected? Is there any way to go further?
- Answer: Nexus approach is required in cities to adapt to climate change and make theme resilient by integrating resources.

### **X.1 Knowledge Management and Transfer for Adoption of a Nexus Approach and Achieving SDGs**

To implement a sustainable natural resource management in the tropics 3 innovative approaches were successfully developed by involving all relevant stakeholders.

- City-to-City Learning can be an important mechanism for small to medium sized cities to adapt to climate change.
- Forced to planned for future impacts. With an holistic perspective.
- Cultural knowledge determined by volcano traditional influences daily life and resources-water management in the study area (Indonesia).



Image: Jan Rieger

### **A.3 Roles of Multifunctional Reservoirs in the SDG Agenda**

The Nexus approach can be achieved either by charisma of enlightened leadership or because of disaster. • Energy demand in African can be largely met using hydropower projects. • Hydropower can contribute to SDGs 2, 6, 7 and 13. • Analyze the demand and supply balance of water in the different scenarios identifying suitable scenarios of reservoir management for the reduction of water use. • There is a clear link between climate change and alterations in reservoir storage. • Issues related to water can range from too little water to too much water and water that is of poor quality. • Natural water retention measures should be seen as part of river basin management plans and as a step towards achieving sustainability.

### **B.5 Assessing Resilience at the City Level: Methods, Frameworks, Models, and Tools**

Author provides concepts and ideas how to create resilience in urban water system, such as focus on innovations to deal with hazard shocks and natural stresses. • How to measure the resilience of several water systems, their ability to absorb stress and changes, and how to compare alternatives for future systems? • The presenter highlights Blue City Index (BCI), its indicators, and scoring. Many cities have a low BCI, they need to improve their water governance. • Author provides concepts and ideas how to create resilience in urban water system, such as focus on innovations to deal with hazard shocks and natural stress. • A theoretical methodology is proposed for how to achieve a general resilience in a system through solving a series of specified resiliences to individual mode. • Insights about paradigm change from satisfactory objects to resilient neighbourhoods are given from a perspective of architecture discipline.



Image: Jan Rieger

### **A.2 Resource Recovery and Reuse in Multifunctional Land-Use Systems**

Technology and capacity are constraints to reuse waste for reducing the negative impact and this can be solved by transferring knowledge and technology. • Urine collected from 3 people, that is about 0.36kg prosperous (P), and application as a fertilizer in agriculture produce 31 kg of wheat and 16kg of soybean. • Halophytes can be used as catalyst for fast-track the paradigm shift towards resource recovery reuse. • We should use each and every possibility to transform waste into a resource - burdens into assets - by utilising the waste hierarchy concept. • There needs to be a shift from unplanned and untreated or partially treated wastewater to planned safe uses. Many economically viable examples already exist. • The reuse of wastewater for food production in India is important as it provides nutrients, supplements chemical fertilisers and increases crop yields. • SPEAKER ABSENT • Technology is available, but scale, perception changes, education and lack of capacity remain key challenges.

### **X.2 New and Refined Approaches Supporting the Implementation of a Nexus Approach**

We need to define clear goals to address the SDGs - Innovative, integrative management of multifunctional landuse systems can help tackling several problems. • A Business Policy Interface (BPI) bringing together business and policy making to address problems of aggregate mining in the Hanoi area, Viet Nam. • Nexus Observatory mechanisms could potentially improve our understanding on the nexus, using social network analysis to re-center interests. • Analyzing crowdsourced data may contribute to a more balanced assessment of the perceived landscape, for a better integration of public values into planning. • Top-down watershed management policies have been implemented since 70s in Ethiopia, with some successful achievements (opportunities) and still challenges, presented together with an strategy to evaluate the implementation.

