S6A: Digitalization in Energy Transition and Water Dynamics

IoT and the Smart Water Management Challeng

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- Water is the world's most valuable commodity (for sanitation, drinking, cooking, agriculture, industrial activities, recreation, and healthy environmental ecosystems), but in many countries it has been so cheap and accessible that its cost is not considered.
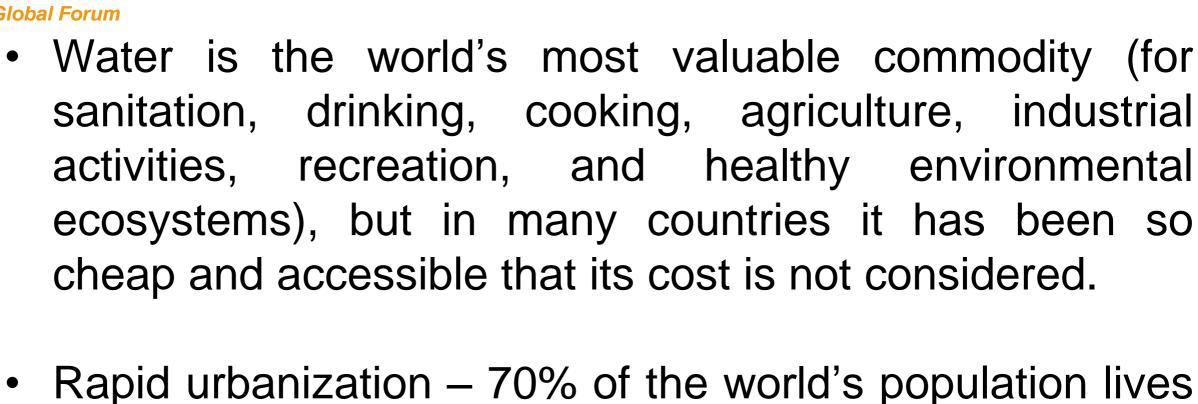
- Rapid urbanization – 70% of the world's population lives in cities – almost 50% of the population is expected to live in water stressed areas by 2025.

- Therefore, water will become one of the biggest expenses for cities in the future and will directly impact economies.

- 785 million people have no access to basic water services, 2 billion people do not have safe and clean drinking water in their homes, 4.2 billion people live without safely managed sanitation (source: UNO).

- *Per capita* freshwater availability has fallen by 20% over the past two decades.

- Floods and other water-related disasters account for 70% of all deaths linked to natural disaster.

- By 2050 more than 4.8 billion people and 50% of the world's grain production will be at risk to water stress (source: IFRI).

New Technology
to the Rescue: Nano - Bio

Shaping the Future 2022
Föreningen Global Forum

Under the High-Patronage of
الجمعية العمانية للخدمات النفطية
Oman Society for Petroleum Services

Nanotechnology and materials science

- Graphene as a filter for the process of reverse-osmosis

- Water harvesting from the atmosphere

Biotechnology

- Designing plants and bacteria to digest and purify specific contaminants increases

IoT:

- The Internet of Things (IoT) is:-

  - not a new concept, but one coming to maturity at a time of unprecedented challenges

  - a key paradigm for shaping the digital future - innovation is a journey!

- Subjects vs. Objects: A stunning metamorphosis.

- Several types of connectivity.

- IoT commercial opportunities – which role for Smart water?

Integrating IoT with the water management process

- Giving utilities and consumers new information on water use (e.g., via smart water meters)

- Delivering data about water consumption, quality, points of loss or leakage, distribution and wastewater

- IoT and the circular economy is deemed to create value and generate wider benefits for society, while building a system that can run in the long-term.

THANK YOU!

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