

## Sustainability & Digital Solutions

### Theme Chairs

Mr. Mohammed Ayoub (QEERI), Mariam Al-Khal (Ooredoo)

As we strive to create a more sustainable future, digital technologies and solutions have emerged as key drivers of change. In this theme, we will delve into the intersection of sustainability and innovations of the digital environment. The theme is structured around three technical sessions covering food security, smart cities and IoT digital solutions. We aim to provide a meaningful platform for expert discussions and insights on how to use technology to tackle some of the World's most pressing environmental and societal challenges in the energy-water-environment nexus. From precision agriculture to smart city planning, and from food traceability systems to the Internet of Things, we welcome contributions sharing knowledge and experiences on how to promote sustainable development and enhance food security in various regions of our World.

### Session 1: Food Security in Desert Climates

#### Session Chairs

Dr. Kashif Rasool (QEERI)

Food security continues to be a pressing concern globally, and even more so in regions with harsh climatic conditions and water scarcity. In this session, we will focus on the unique challenges and opportunities of food production and distribution in desert environments. We invite a wide range of relevant contributions on the latest findings and solutions aiming to improve food security and promote sustainable development in arid regions. The session will cover topics including, but not limited to, sustainable agriculture practices, innovative technologies, and resilient food systems in desert environments. Finally, we highly welcome contributions on the future of food security in arid regions.

### Session 2: Smart Cities

#### Session Chairs

Dr. Abdmonem Beitelmal (QEERI), Ms. Nihal Mohammed (Earthna), Eng. Alf Ziegler (NEOM)

With rapid urbanization and the growing need for more sustainable and livable cities, the concept of smart cities has gained prominence in recent years. In this session, we will be exploring the latest advancements and best practices in the development of smart cities. We welcome contributions sharing knowledge and insights on how cities can leverage technology to create a more efficient and sustainable urban environments. We aim to examine the role of IoT, data analytics and smart infrastructure in creating smarter cities, and explore the benefits and challenges of implementing smart city solutions with an emphasis on the energy-water-environment nexus. This session is provided as a platform for discussing innovative ideas and exploring the future of urban development in various regions of the world with a particular focus on arid regions.

### **Session 3: Digital Environment**

#### **Session Chairs**

**Dr. Antonio Sanfilippo, Mr. Sean Khan (UNEP), Mr. Tamujin Mirza (TASMU)**

With the rapid development of technology, the way we interact with the environment is undergoing a deep transformation. In this session, we will be exploring the use of digital technology in the development of sustainable solutions for air quality, climate change, energy transition, and water resource management. We welcome contributions on the use of digital solutions to address some of the World's most pressing sustainability challenges in deploying applications in the environment, energy and water domains. Relevant topics include but are not limited to: (a) the development of edge-to-cloud computing infrastructures that harness IoT, communication and AI methods and technologies to develop monitoring and control solutions for environment, energy and water applications; (b) the use of digital twins to validate system performance before physical prototyping in environment, energy and water applications; and (c) the development of prediction and optimization models that help identify sustainability opportunities and tradeoffs in the deployment of environment, energy and water applications.