WATER IN CIRCULAR ECONOMY AND RESILIENCE (WICER)

Session 2: Presentation of case studies, examples of good practices, and discussion

Objective: familiarize the participant with different solutions, approaches and business models that have been implemented around the world

Context: The case studies presented show how different principles of circular economy can be applied in the water sector. They also show that many times applying the circular economy principles provides not only environmental benefits, but also social, economic, and financial ones. The cases presented and documented by the World Bank (see list below) provide examples such as: water utilities that have re-evaluated the full potential of their existing infrastructure - resulting in huge savings in delayed capital investments; water utilities that have implemented energy efficiency and non-revenue water programs, recovering the investments in less than three years while saving water and energy and increasing the amount of people with access to services; water utilities producing renewable energy and reaching energy neutrality; water utilities recovering resources from wastewater and creating a new revenue stream by selling energy, water, and fertilizers to cover operating costs; municipalities that have partnered with the private sector to restore watersheds and provide sanitation services…Some cases also highlight the role of the water sector towards the reduction of greenhouse gas emissions through, for example, energy efficiency measures and self-generation of renewable energy.

Discussion Questions:

- INNOVATIVE SOLUTIONS AND REPLICABILITY: What lessons have you learnt from the case studies that could be applied in your context? Had you heard of all these potential solutions/business models? Do you have other interesting examples to share with the group?
- FINANCING: Do you think that circular economy solutions are usually more expensive? Can the public sector take on the additional capital investments required? Should the private sector be involved? How?
- CHALLENGES: What are the main challenges you face to implement circular economy approaches in water? What needs to change to scale up this type of solutions? What do you think is more challenging, to pick the right technology or the right business model?
- OPPORTUNITIES: Where do you see the biggest potential in your context?

RESOURCES: Documented Case Studies by the World Bank:

- Bolivia: Santa Cruz de la Sierra –Covered Anaerobic Ponds and Their Potential for Energy Generation in Wastewater Treatment Plants
- Brazil: Sao Paulo – Maximizing the use of existing infrastructure: Optimizing Wastewater treatment plants in the metropolitan area of Sao Paulo
- Cambodia: Phnom Penh – Improving Operational Efficiency and Reducing Nonrevenue Water
- Chile: Santiago – Generation and Sale of Biogas and the concept of biofactorias
- China: Lingyuan City – Unconventional Water Resources in a Water-Scarce City: Recycling Treated Municipal Wastewater for Industrial Users and to restore the ecosystem
- Egypt: New Cairo – A PPP to Increase Wastewater Coverage and Foster Wastewater Reuse
- India: Chennai – Applying the WICER Principles: Increasing resiliency and recovering Water and Energy from Wastewater
- India: Nagpur –Wastewater Reuse in Thermal Power Generation
- Indonesia – Promoting Nonrevenue Water Reduction and Energy Efficiency in Indonesia's Water Utilities
- Mexico: Atotonilco de Tula – Reuse of Treated Wastewater for Agriculture, Energy Generation, and Transfer of Value to Stakeholders in the Valley of Mexico
- Mexico: San Luis de Potosí – Integrated Wastewater Management Plan and Water Reuse
- North Gaza – Wastewater treatment for aquifer recharge and reuse in a water-scarce context marked by fragility, conflict, and violence
- Peru: Arequipa – A win-win partnership between a water utility and industry to treat and reuse wastewater for industrial purposes and to restore watersheds
- Portugal – Implementing circular economy and resilience principles in the long-term strategy of urban utilities
- Senegal: Dakar – Recovering resources from wastewater and fecal sludge under circular economy principles
- South Africa: Durban – Wastewater Reuse for Industrial Purposes
- United States: Ridgewood – Achieving energy neutrality in a wastewater treatment plant with co-digestion

All the documented case studies can be found at:

www.worldbank.org/wicer

www.worldbank.org/wastetoresource