

ADB



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The role of water in promoting a low carbon growth and resilient future in cities

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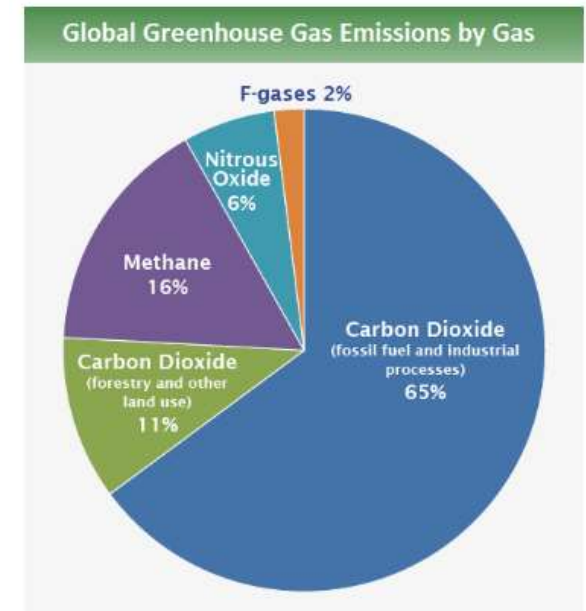
Some figures

- ✓ The contribution to global **Greenhouse Gas emissions (GHG)** from the water sector (water supply, sanitation, flood risk management, irrigation, hydropower) may be up to 10% of global emissions
- ✓ Nevertheless, the sector can play a key-role both in promoting **adaptation and mitigation** and therefore in achieving climate finance ambitions
- ✓ **Climate change** manifests itself primarily through changes in the water cycles with affects **availability, quality** and **quantity of water**



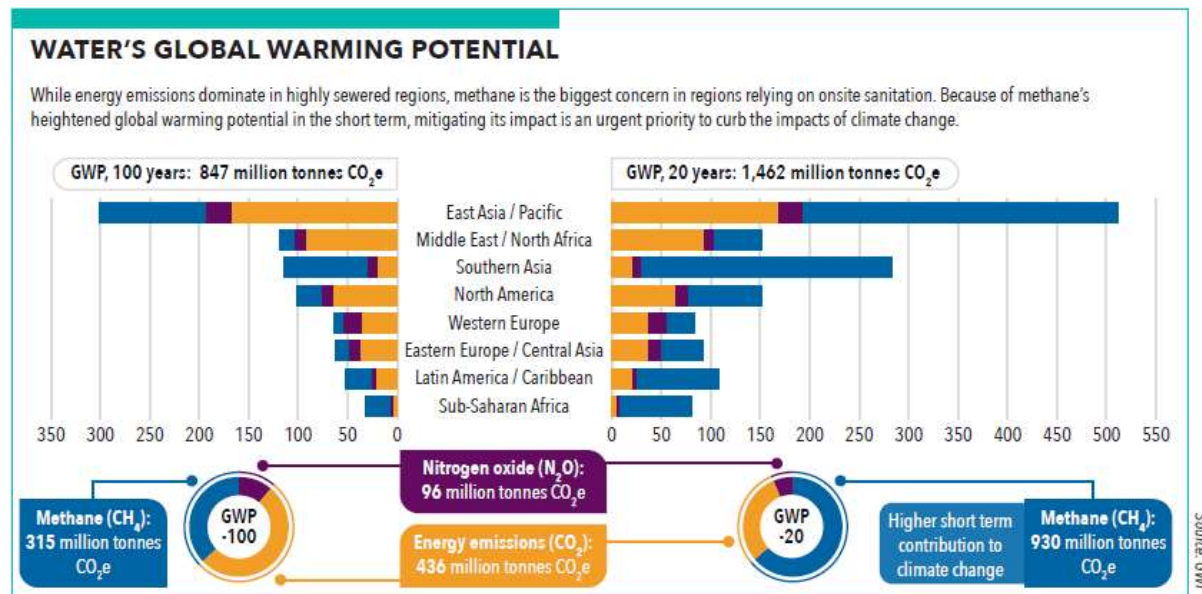
Major contributors to GHG emissions

- Carbon dioxide
- Methane x28 (methane global warming potential is 28 times more severe than CO₂, estimated on a 100-year time window; over a time-window of 20 years this increases to 79.7 times)
- Nitrous oxide x265



Source: [IPCC \(2014\)](#) [Exit](#) based on global emissions from 2010. Details about the sources included in these estimates can be found in the [Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change](#) [Exit](#).

Water's global warming potential



- Over **half** of CO₂e from the water sector comes from Asia and the Pacific, with East Asia/Pacific responsible for about **a third**
- CO₂** has the highest contribution to total global warming potential, estimated on **100 years** time-horizon
- Methane** has the highest short-term contribution to total global warming potential (**64%**), estimated on **20 years** time-horizon
- In the short term, it is important to put more effort into **cutting our industry's methane emissions**

Water sector opportunities: water production & distribution (1)

Basic Water Source - no pumping and minimum chemicals	Traditional Water Systems – combination of pumping / treatment / chemicals	Desalination Sea Water Reverse Osmosis (Average)	Desalination Sea Water Reverse Osmosis (high) and plants run by fuel oil
10%	60%	20%	10%

Estimated global water production per source

Basic Water Source - no pumping and minimum chemicals	Traditional Water Systems – combination of pumping / treatment / chemicals	Desalination Sea Water Reverse Osmosis (Average)	Desalination Sea Water Reverse Osmosis (high) and plants run by fuel oil
30 g/m ³	298 g/m ³	3170 g/m ³	6700 g/m ³

CO₂ in grams per m³ of water per water production source

- Water production through traditional water systems is relatively the most important source of water production. However, water production through desalinization is rapidly growing
- Relative CO₂ production in case of desalinization is much higher than if compared with traditional water systems

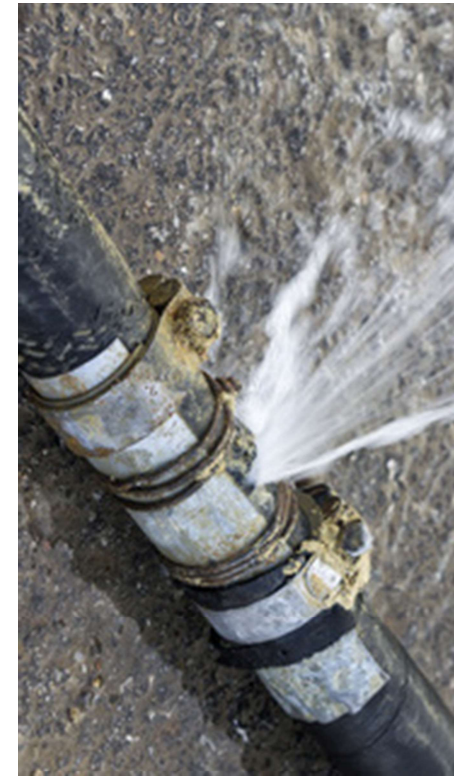
Water sector opportunities: water production & distribution (2)

CO ₂ OVERVIEW PER WATER SOURCE PER YEAR				
Basic Water Source	Traditional Water System	Desalinated Sea Water – Reverse Osmosis	Desalinated Sea Water – RO using Fuel Oil	TOTAL
264,600	15,770,160	55,918,800	59,094,000	tons per year
10%	60%	20%	10%	% water source
30 g/m ³	298 g/m ³	3170 g/m ³	6700 g/m ³	CO ₂ g/m ³
0.21%	12.03%	42.67%	45.09%	% of CO ₂

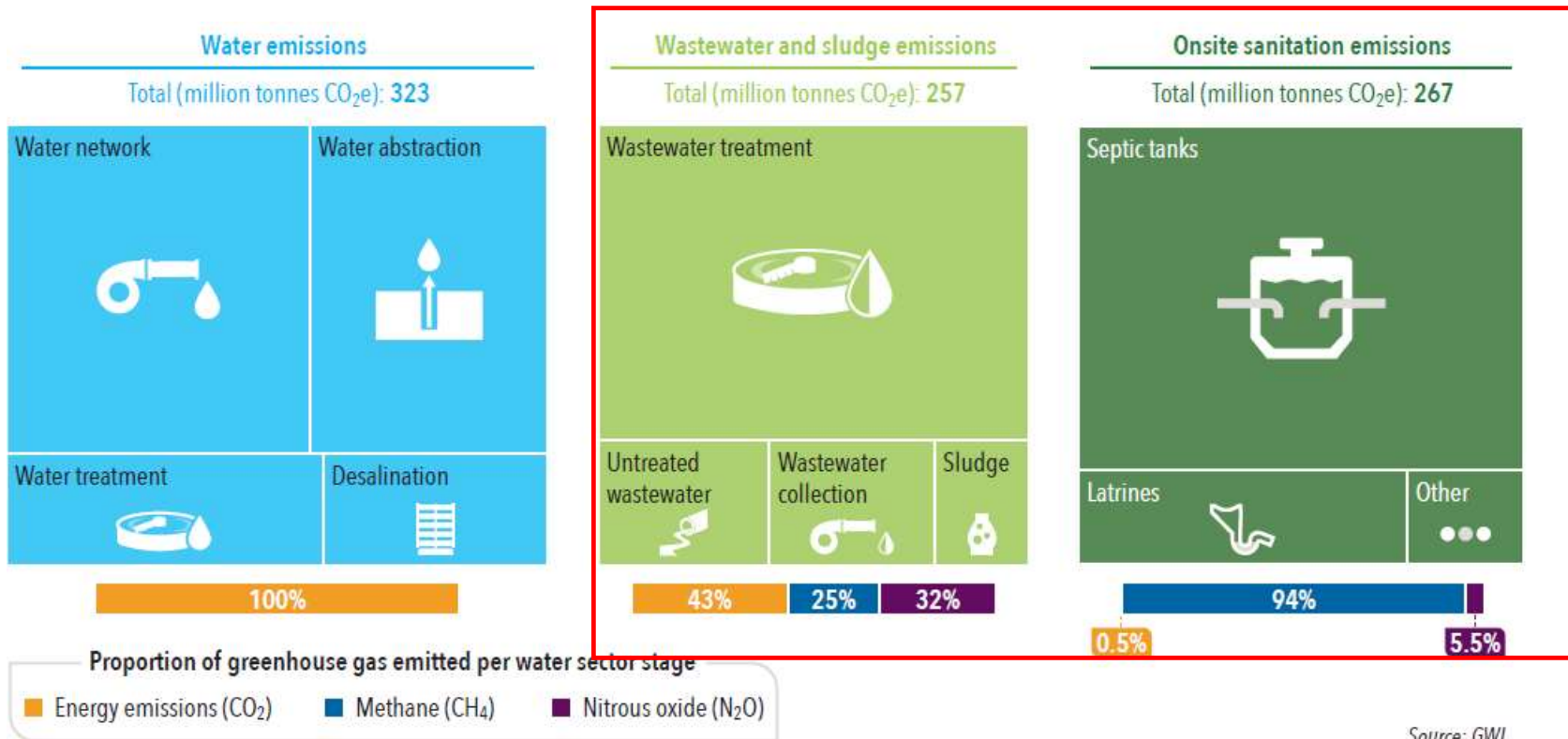
Miya 2022 "The Global Non-Revenue Water Issue"

Opportunities:

- Use of **renewable energy** for pumping / desalination
- **Non-revenue water reduction** (i.e. 187.2 million metric tons CO₂ / year ≈ 0.4% of global CO₂ emissions)



Water sector opportunities: wastewater & sanitation

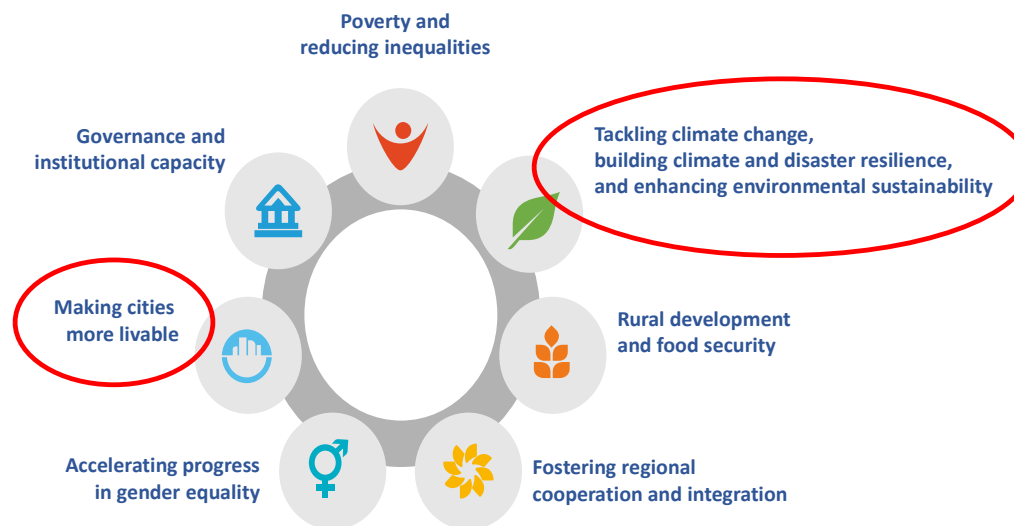


Source: GWI

- Renewable energies and energy efficient solutions are largely **reducing the impact from energy emissions** (i.e. drinking water)
- The **biggest opportunity** in the water sector is **capturing the full value of the biogas** that can be generated **from wastewater and fecal sludge** (e.g. decentralized anaerobic wastewater treatment)

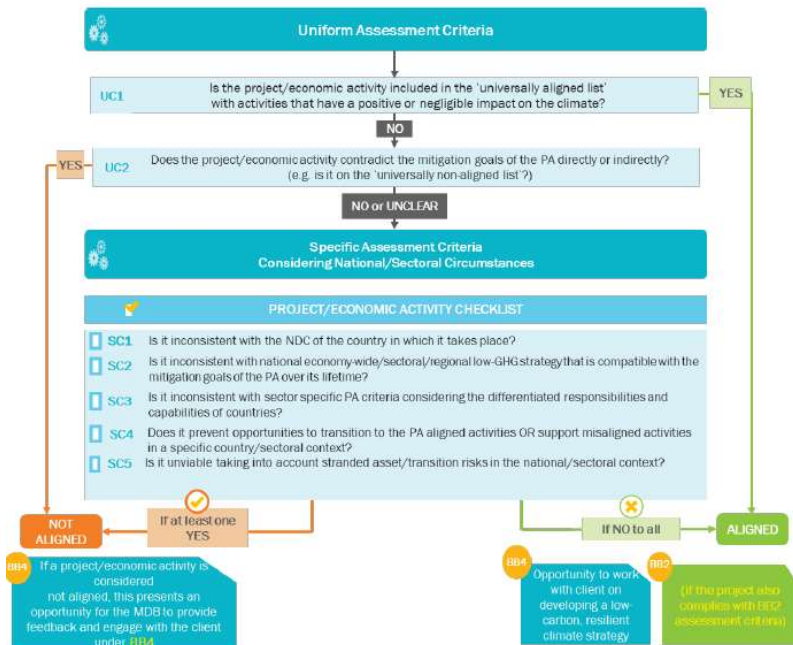
ADB Strategy 2030

- Climate change directly mentioned as one of seven **ADB Operational Priorities**. Indirectly embedded in all Operational Priorities
- ADB ambition on climate financing raised last year from **\$80 billion to \$100 billion** cumulatively from 2019 to 2030

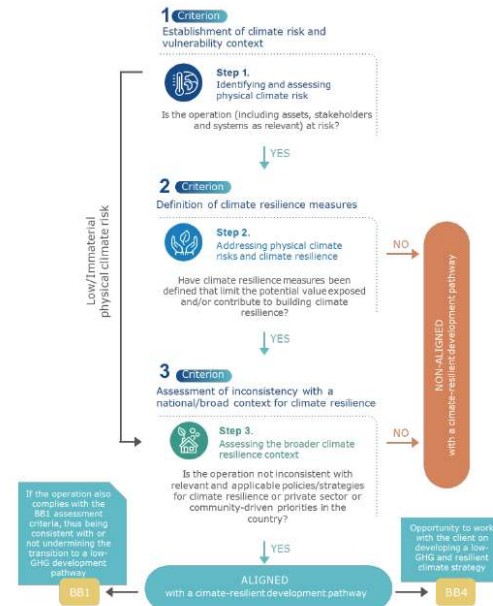


Paris Alignment

- ADB committed to full alignment of its sovereign operations with the goals of the Paris Agreement by 1 July 2023, and its non-sovereign operations to 85% by 1 July 2023 and fully by 1 July 2025



BB1. Mitigation

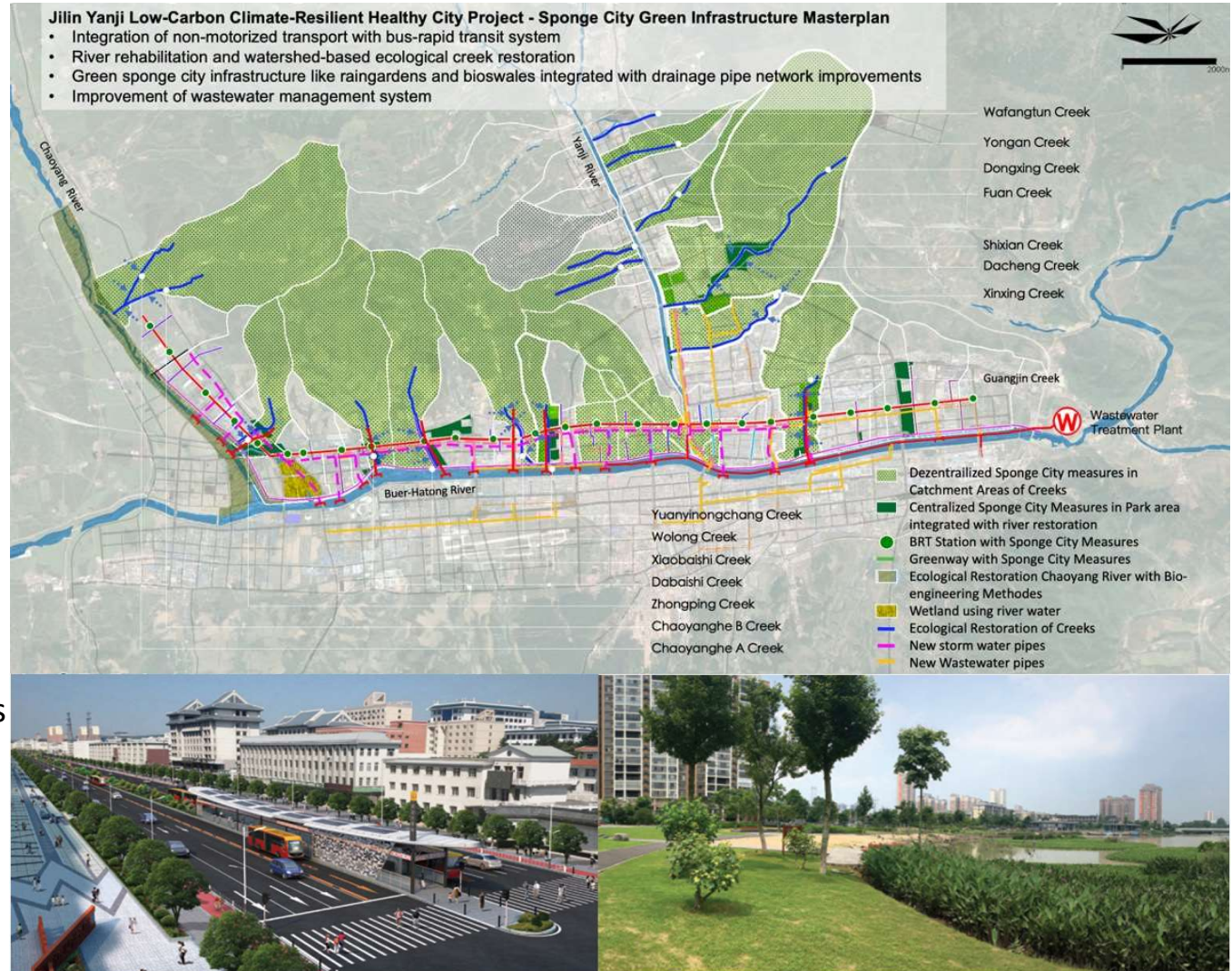


BB2. Adaptation

PRC: Jilin Yanji Low-Carbon Climate-Resilient Healthy City Project

Integration & improvements to:

- Transport
- River rehabilitation and ecological restoration
- Green sponge city infrastructures
- Wastewater management



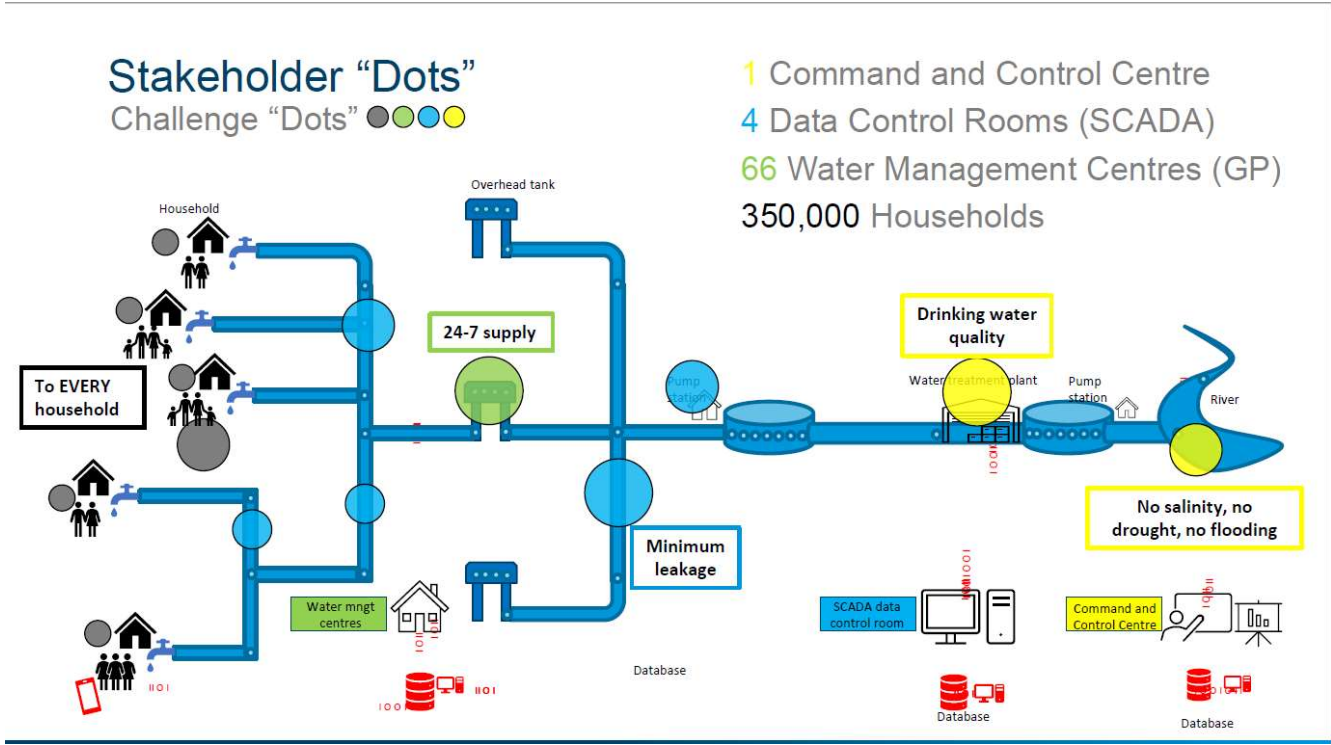
South Tarawa Water Supply Project

- South Tarawa (population around 62,000) is largely reliant on fragile groundwater lenses which are vulnerable to climate change impacts
- The project will provide the entire population of South Tarawa with a climate resilient water supply through:
 - 4,000 m³/d seawater desalination plant with energy consumption offset by 2.5MW solar PV
 - Rehabilitation and expansion of water supply network
 - Institutional strengthening, capacity building and medium-term support to infrastructure O&M
 - Awareness program addressing water, sanitation, hygiene and climate change resilience



Co-financed by: GCF, ADB, World Bank, Government of Kiribati

West Bengal Drinking Water Sector Improvement Project

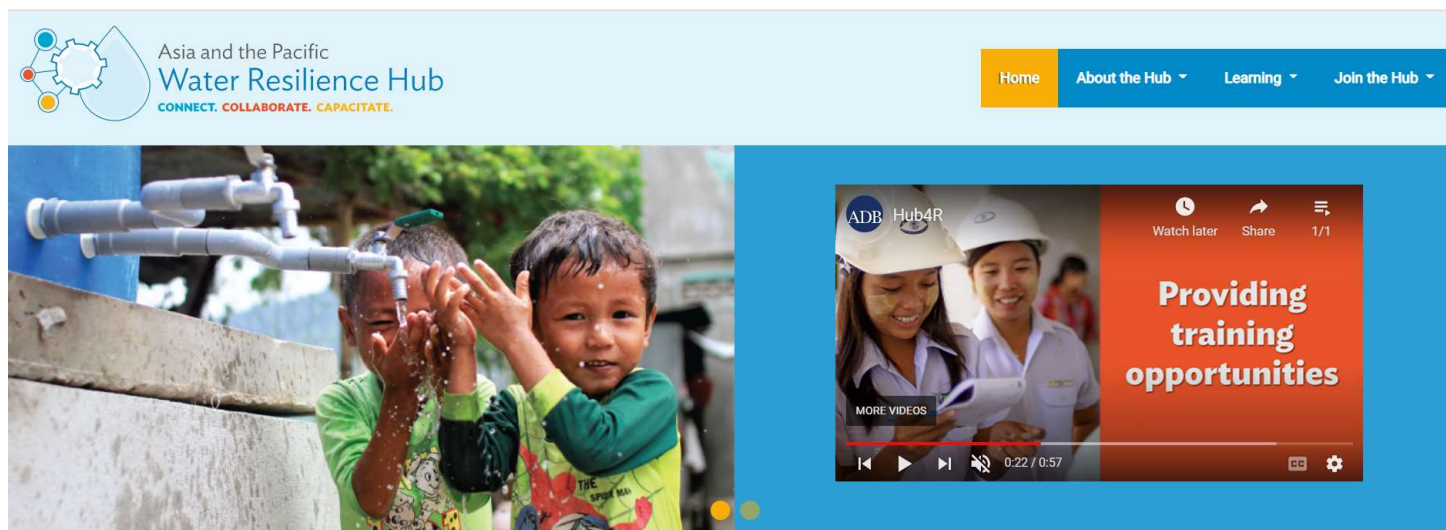


Smart Water Management to enable efficient service delivery and improving water quality

Including contribution of government of India and government of West Bengal

The Asia and the Pacific Water Resilience Hub

<https://hub4r.adb.org/>



Join the Hub

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Resilience and Adaptive Capacity ♦ Inclusiveness and Gender Equality ♦ Environmental Sustainability and Circular Economy
♦ Governance and Finance ♦ Innovation and Technology



Connect with water
resilience experts
and organizations



Access world-class
training resources



Browse tools, data,
innovative methods,
and digital technologies



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