State of the Science: Water and Climate Mitigation

Josh Weinberg, Stockholm International Water Institute

International Water and Climate Mitigation Symposium - Imagination Challenge: Water's Role in the Race to Zero, September 14, 2021 10:00am–2:00pm EDT

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Climate action - mitigation and adaptation

Alarming new report from the Intergovernmental Panel on Climate Change, IPCC

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Understanding water and climate mitigation

Estimates 10% of GHG emissions can be attributed to only four areas (directly related to water):

- Water and wastewater management
- Peatlands
- Cultivation of rice
- Organic matter and nutrients in surface water

Water is even more important than that!

Freshwater's role for achieving the Paris Agreement mitigation targets

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Water-related mitigation measures

Technology driven mitigation

Modern urban wastewater treatment plant.

Nature-based mitigation

Tropical forest restoration site, Borneo

Most mitigation measures are dependent on/impacted by freshwater!

Both technical and nature-based solutions in report

The report will cover mitigation measures in:

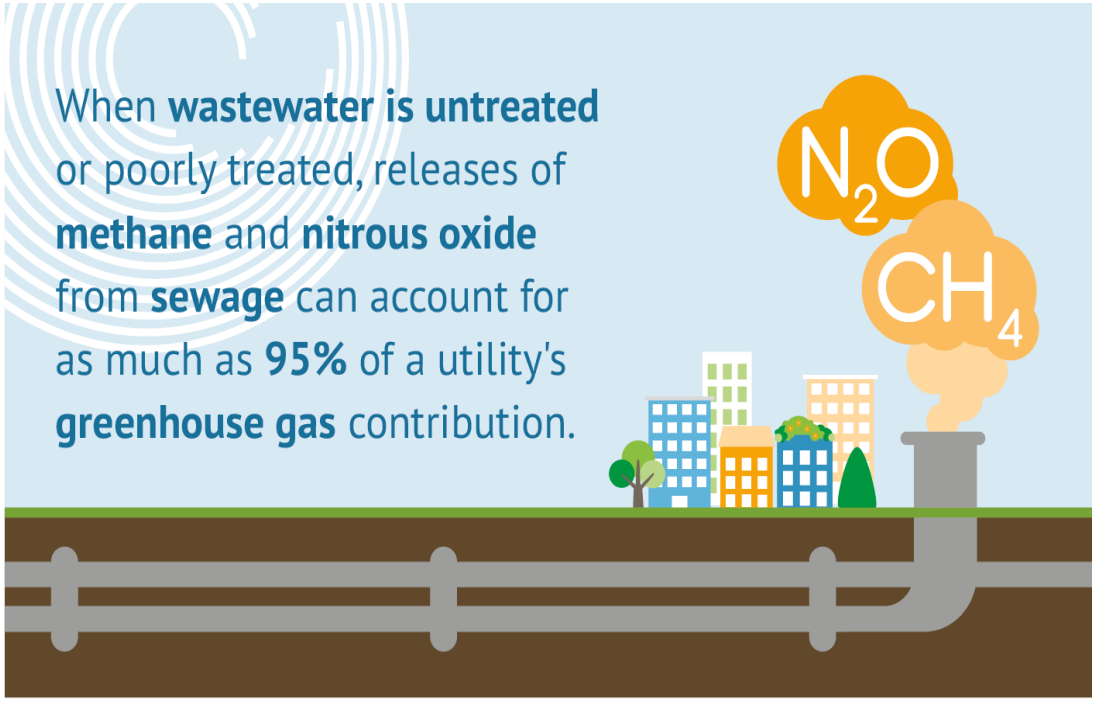
- Water treatment, supply and sanitation
- Energy system
- Inland water ecosystems (wetlands, rivers, etc.)
- Forests and forestry
- Croplands and rangelands

The report will also examine:

- Water-mitigation leverage points and risk hotspots globally
- Integrated and cross-sectoral approaches

Water treatment, supply, sanitation and climate: We know the big picture - big problems + win-wins

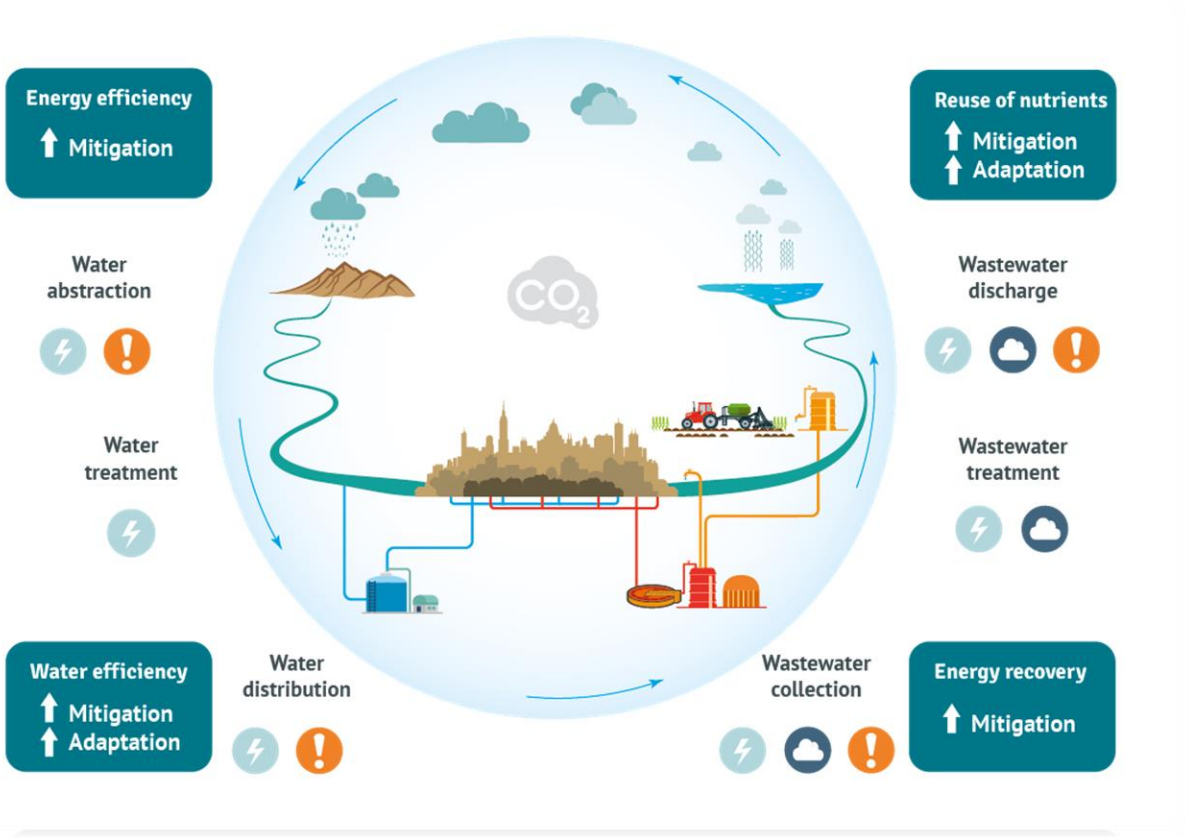
- **Wastewater is critical to climate:**
  It emits more GHG if it is not treated.
- **Emissions from waste and wastewater treatment are at least 3% of global GHG**
- **Energy and heat generation from waste** can lead to ‘climate positive’ results.
- **There is strong guidance and technologies** for wastewater processes to be used and scaled up



Mitigation of GHG emissions through water treatment, supply and sanitation

Authors explored mitigation areas including:

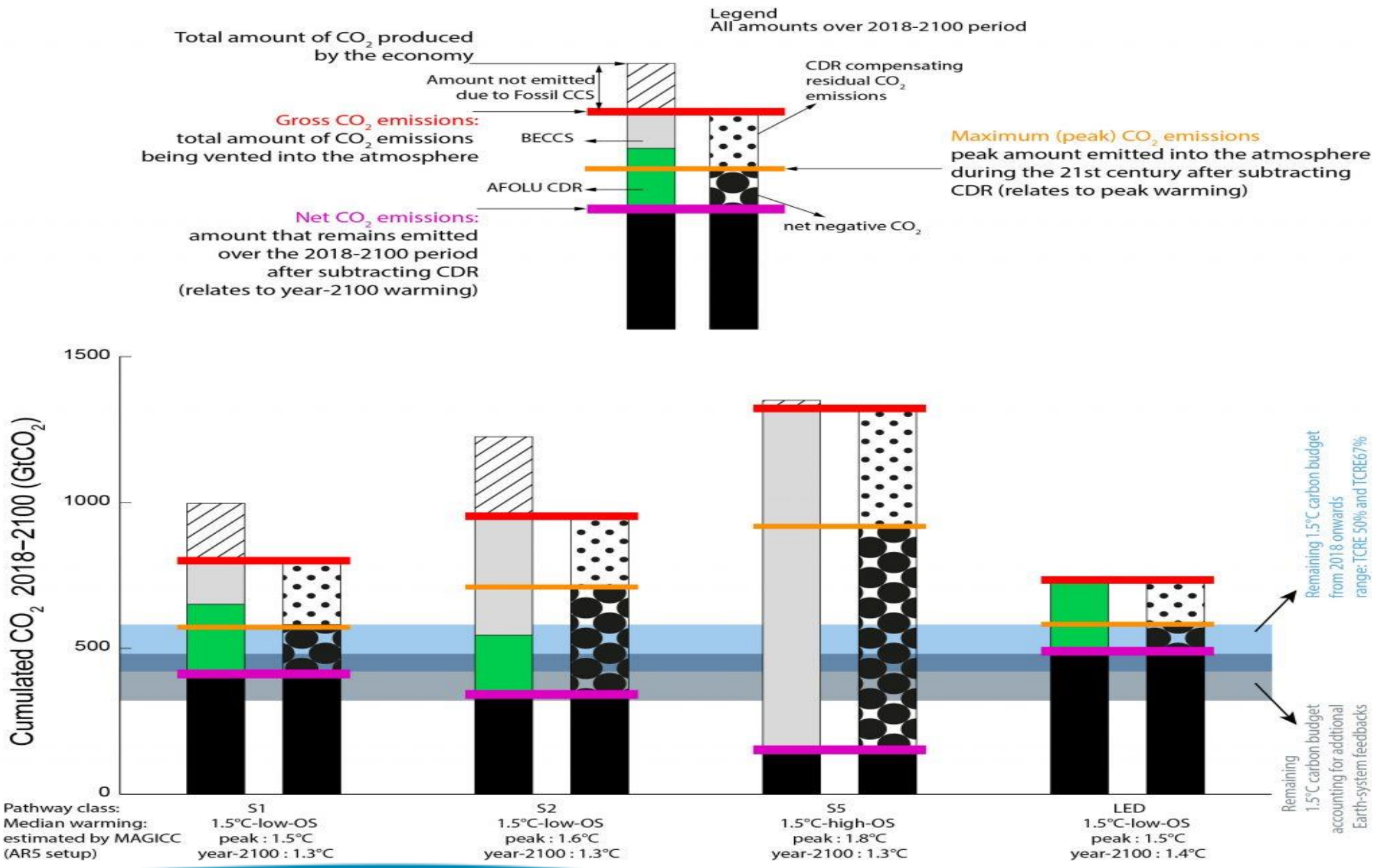
- Optimised process selection and operational conditions of wastewater and faecal sludge treatment and discharge
- Enhancing wastewater collection and treatment, incl. decentralized solutions
- Energy efficiency improvement measures
- Rapid deployment of renewable energy
- Upgrading groundwater pumping
- Enhanced desalination processes
- Energy recovery



Mitigation of GHG emissions through water treatment, supply and sanitation: Key messages

- Investment in expanding and enhancing wastewater and sanitation management is critical for climate mitigation
- Water and wastewater management requires a lot of energy and has high energy generation potential
- More and better data and reporting of actual GHG emissions from water and sanitation management is needed
- The WASH sector is poorly represented in the climate policy debate, and should look to receive more than its current limited share of climate-related finance

Why invest? Why act now?



Pathways to limit warming to 1.5 degress

Simple take-home messages

There is a lot you can do and a lot that is needed to be done

- Investments and actions taken domestically and through international development are significant for climate mitigation
- Functional utilities and water treatment are critical to global development and to reduce emissions. This is missed in how we finance climate action; and potentially in our GHG accounting.
- Take responsibility, take action, but also credit for reducing emissions through water management.

Linking water into mitigation plans is essential

- Our paths to climate mitigation and resilience are tricky and unpredictable – every missed opportunity to mitigate may imply a water risk later.

- Engage to ensure mitigation planning in your area considers water in the short-, medium and long-term. Water budgets and assessments should be part of mitigation planning at all scales (including NDCs).

Thank you!

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