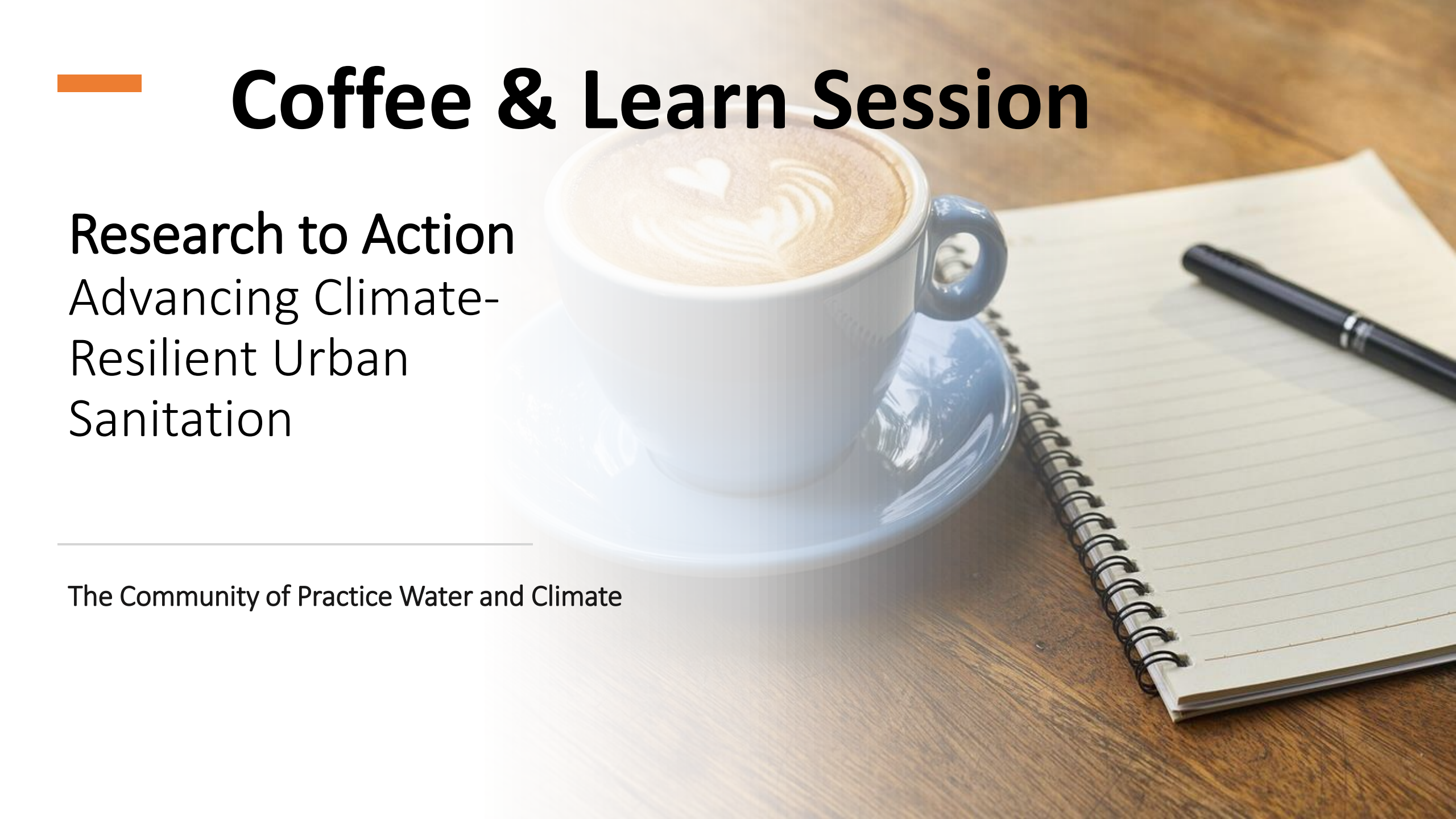
Coffee & Learn Session



Research to Action

Advancing Climate-Resilient Urban Sanitation

The Community of Practice Water and Climate

CoP Water & Climate Steering Group

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CON ICE – WATER AND CLIMATE

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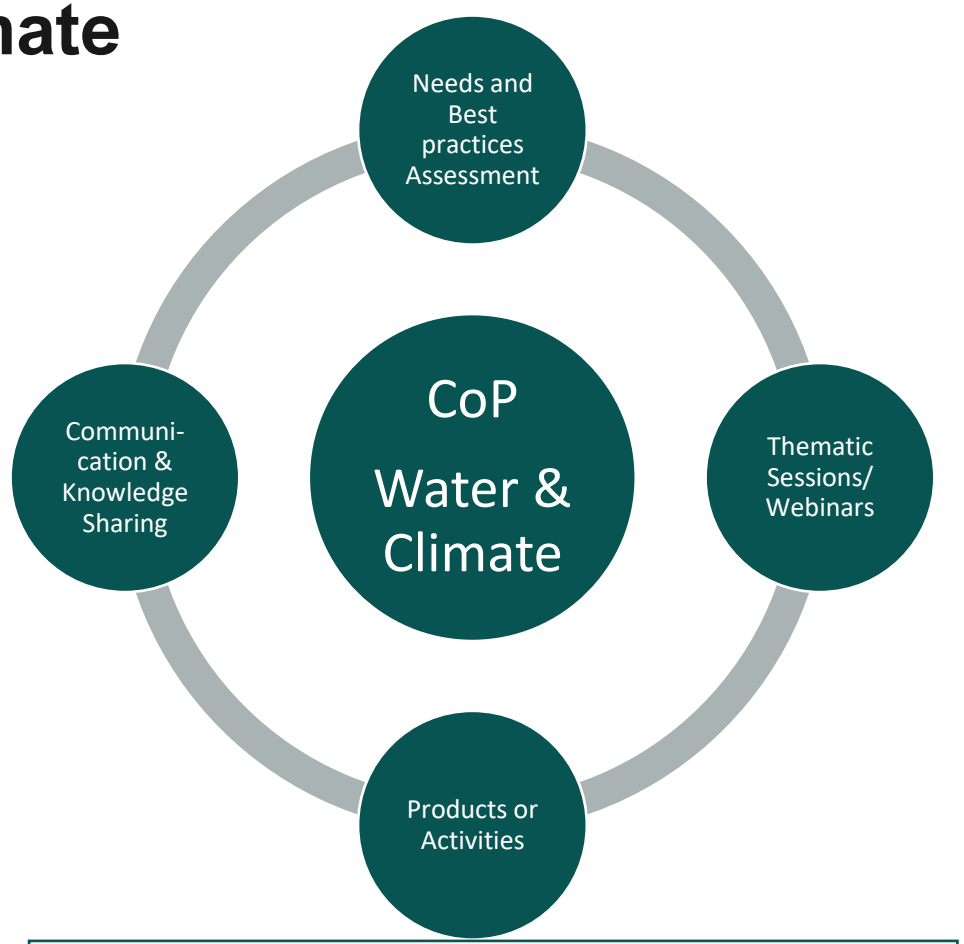
The Community of Practice Water and Climate

Objective

Assembling & collating worldwide GIZ experience in the interlinkage of Water and Climate to better address increasing challenges.

Who can participate?

- Experts and projects from the water and sanitation sector, and related sectors (i.e. urban and infrastructure planning, agriculture, NbS), who engage in climate resilience
- Participation is not limited to projects that define climate change adaptation or mitigation as their key objective



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SOWAS-Upscaling / GADeR-ALC / MEN-REM - WASAM

Coffee & Learn Session Agenda

Time (CET)	Item	Format	Speaker
11:00 – 11:03	Welcome and introduction round	Presentation	CoP steering group
11:03 – 11:10	Introduction of the Sustainable Sanitation Alliance – SuSanA	Presentation	Alexandra Dubois
11:10 – 11:30	Presentation of the Climate Resilient Landscape Study and the implications for the Sector	Presentation	Juliet Willetts and Avni Kumar
11:30 – 11:42	Q&A	Open discussion	Alexandra Dubois
11:42 – 11:45	Closing remarks and next CoP events	Presentation	CoP steering group

sustainable sanitation alliance

Presentation of SuSanA

sustainable sanitation alliance

What is SuSanA ?

SuSanA is a global community whose goal is to contribute to the achievement of the SDGs by promoting Sustainable Sanitation

www.susana.org

- SuSanA is a coordination and discussion platform
- SuSanA is a sounding board
- SuSanA contributes to the policy dialogue
- SuSanA is a working platform
- SuSanA promotes knowledge exchange and learning

The SuSanA Secretariat

- Hosted by GIZ since 2008 (with base funding from BMZ)
- The secretariat is implemented by the GIZ Sector Programme ´Water Policy – Innovations for Resilience´
- GIZ contributes to the Network with the equivalent of 2 and a half full-time experts working for the Secretariat

Dr. Arne Panesar
Head of Secretariat

Alexandra Dubois

Maren Heuvels

Teresa Häberlein

Daphne Manolakos

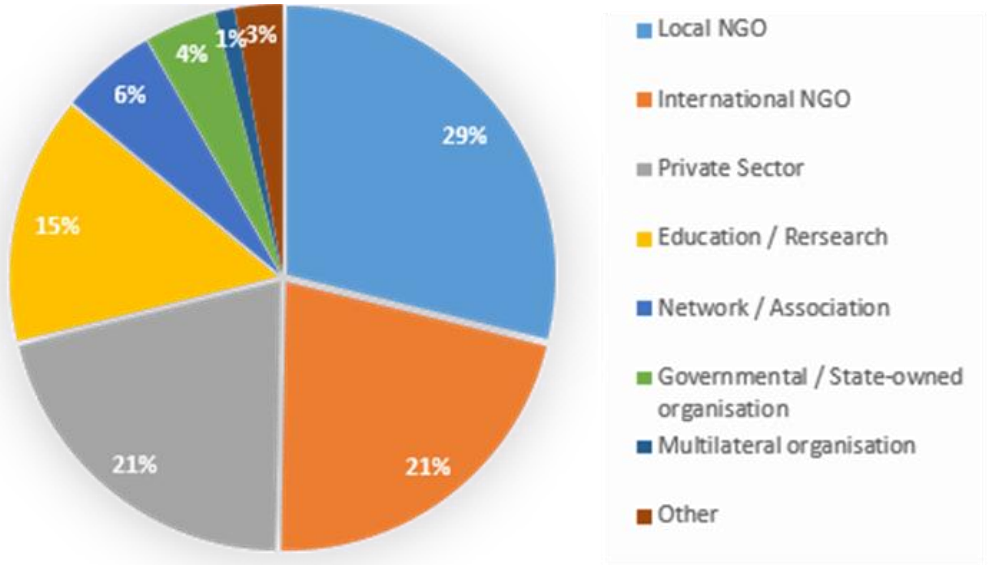
Vincent Krieg und Philipp Dering

SuSanA members and partner organizations

15,362 individual members from 187 countries
400 partner organisations

diverse base of partners and members from all around the world: *practitioners, academics, institutional actors, NGOs, private sector, Donors, etc.*

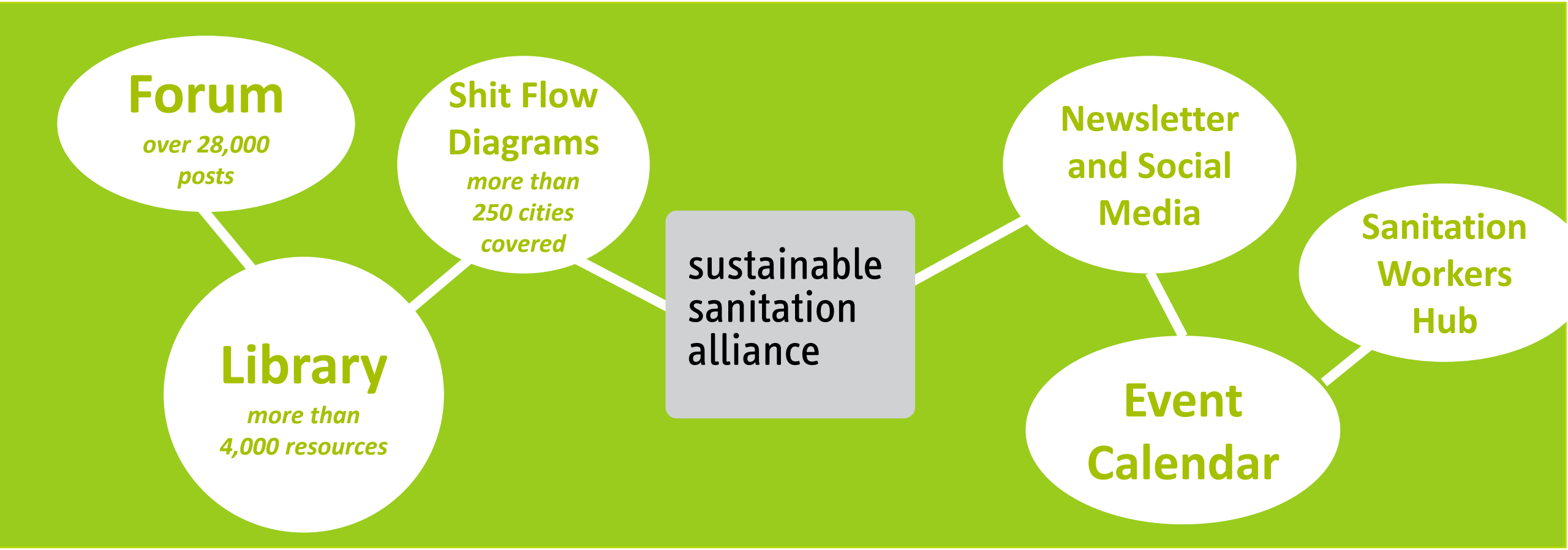
→ rich and holistic exchange
→ global and localised input
→ inclusive approach



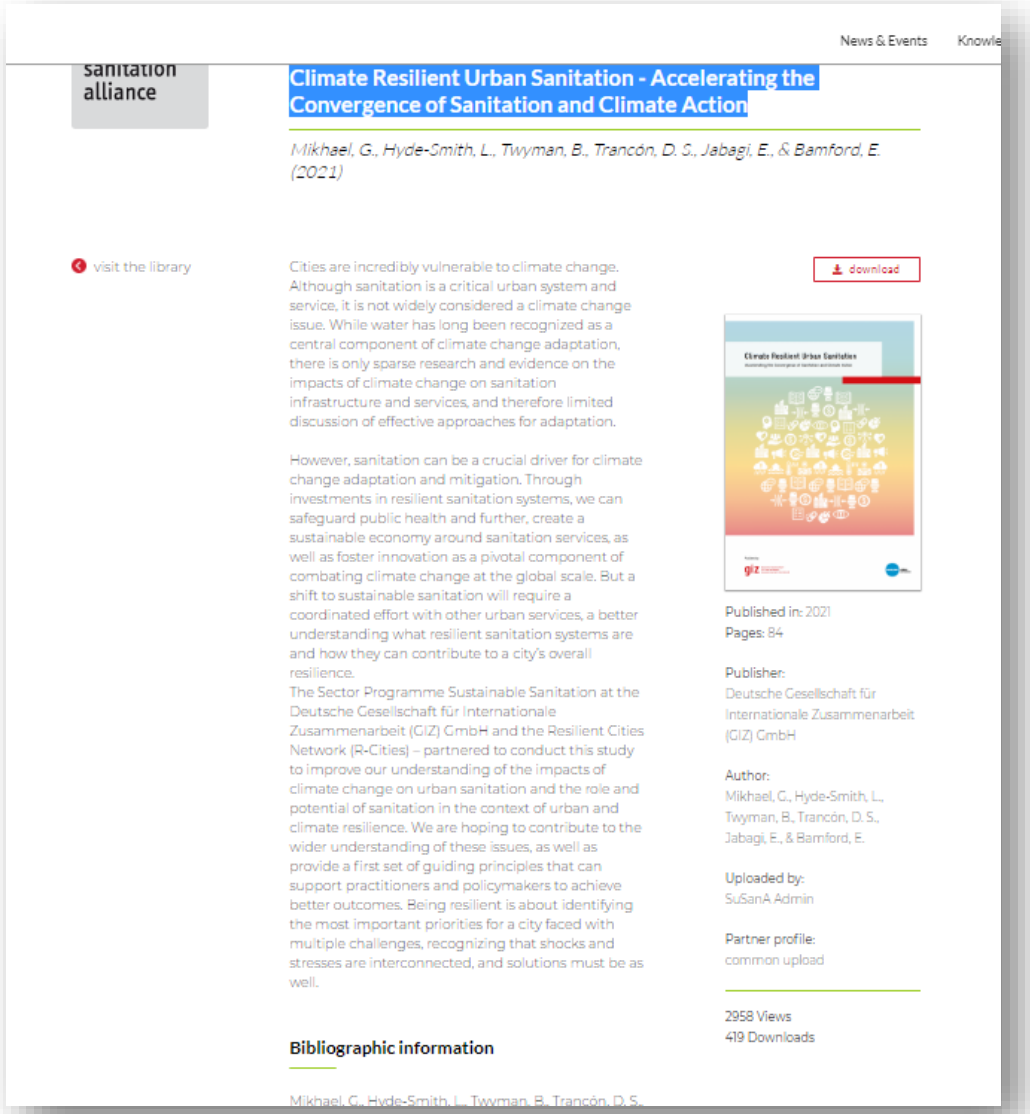
sustainable sanitation alliance

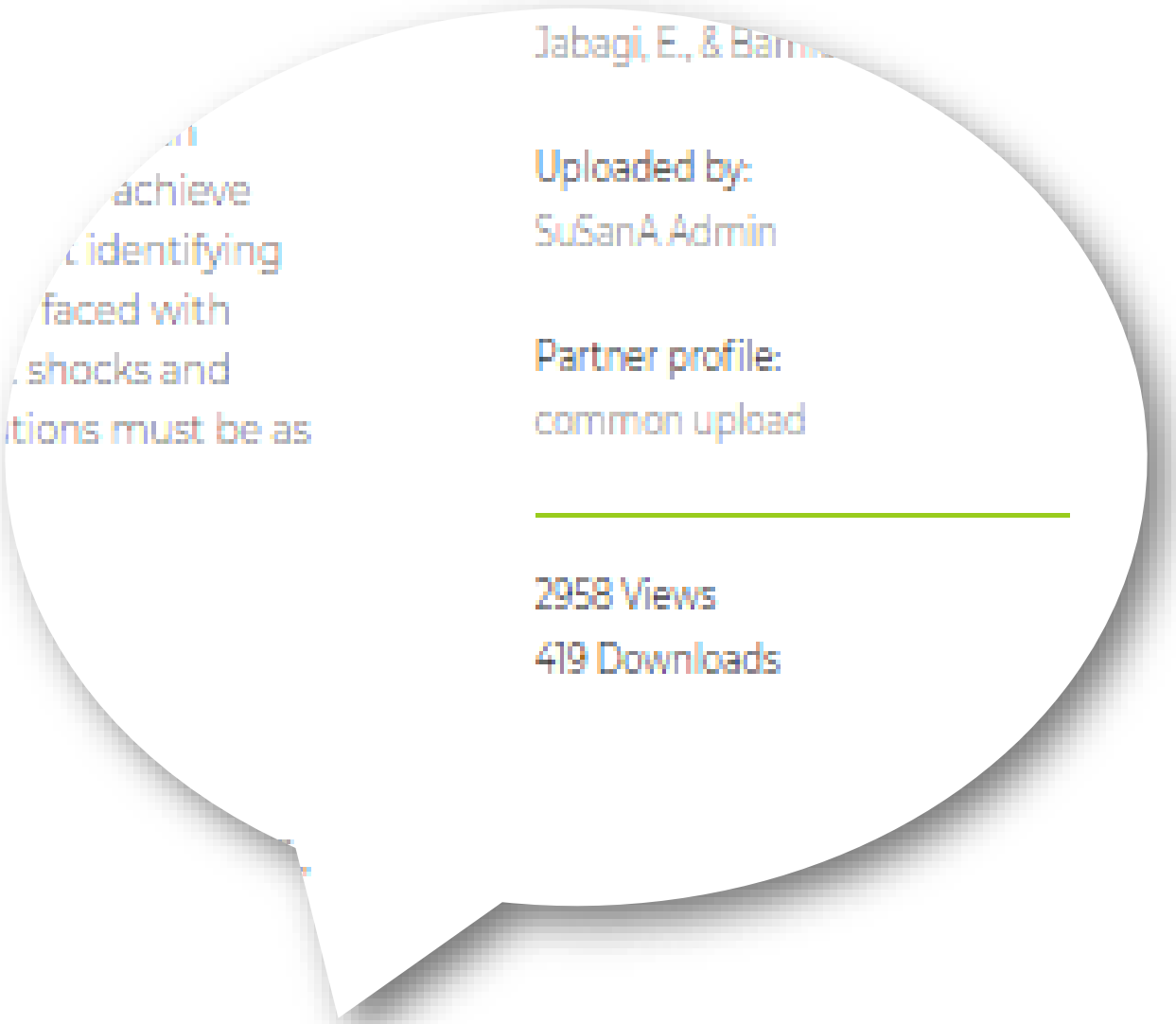
Key tools from the SuSanA platform

SuSanA features a range of tools for collaboration and knowledge sharing



SuSanA library





sustainable sanitation alliance

Cooperation Formats

Working Group 1
Capacity development

Working Group 2
Market development

Working Group 3
Climate Mitigation and Adaptation

Working Group 4
Sanitation systems and technology options

Working Group 5
Food security and productive sanitation systems

Working Group 6
Cities

Working Group 7
Sustainable WASH in institutions and gender equality

Working Group 8
Emergency and reconstruction situations

SuSanA links on the ground experiences with an engaged community through:

- 13 SuSanA Working Groups
- 4 regional Chapters (India, WANA, Latin America and Africa)
- A dynamic Discussion Forum

Working Group 9
Public awareness, advocacy and civil society engagement

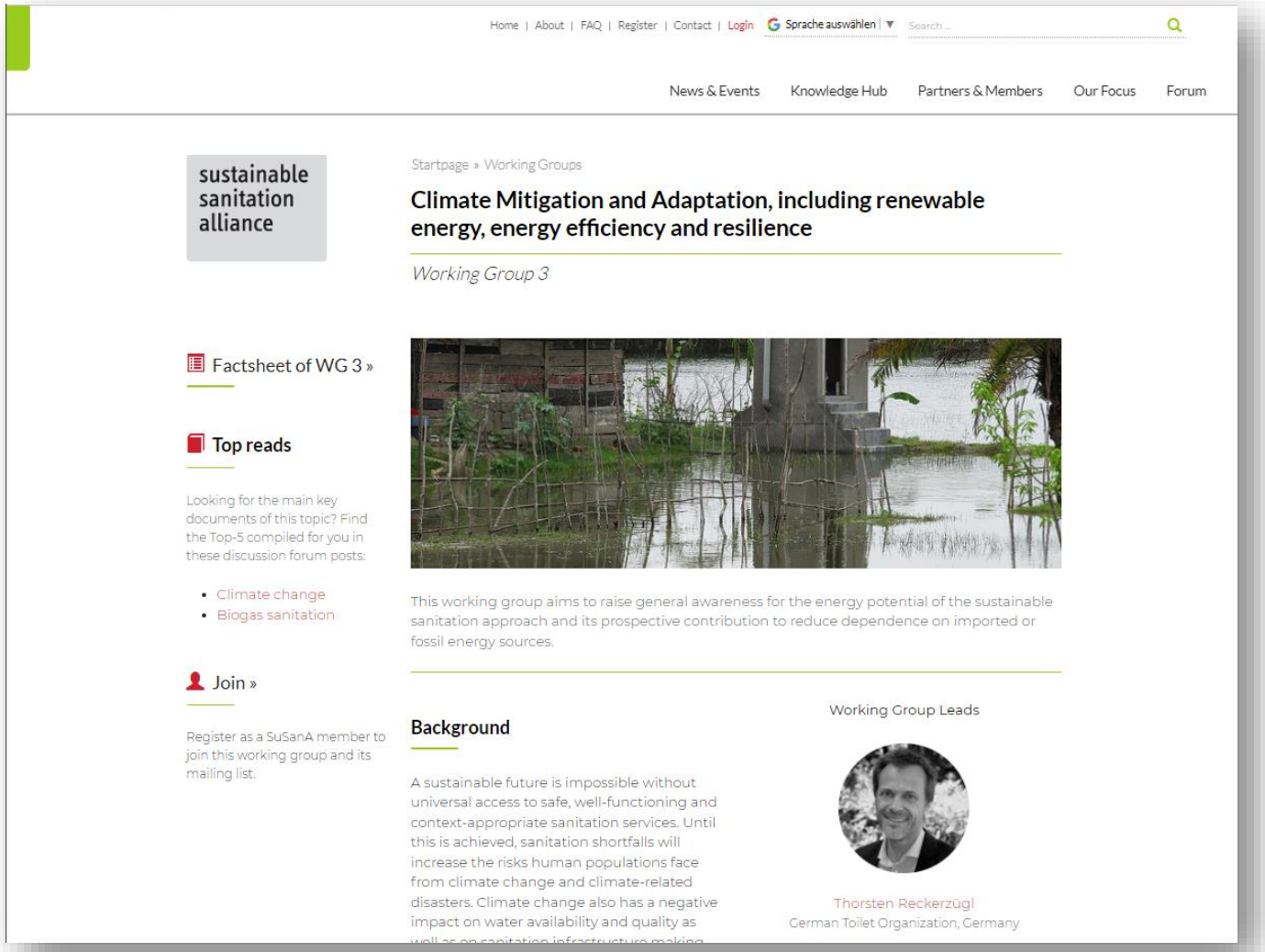
Working Group 10
Operation, maintenance and sustainable services

Working Group 11
Groundwater protection

Working Group 12
WASH and nutrition

Working Group 13
Behaviour change

Working Group 3: Climate Mitigation and Adaptation



→ Join the SuSanA Working Group 3 on climate

www.susana.org/register

WG 3 get-together

Examples of key products


sustainable sanitation alliance

SuSanA background paper

Opportunities for sustainable sanitation in climate action

May 2019

Table of contents

EU response to cyclone Idai,Mozambique © ANOUK DELAFORTRIE / EU

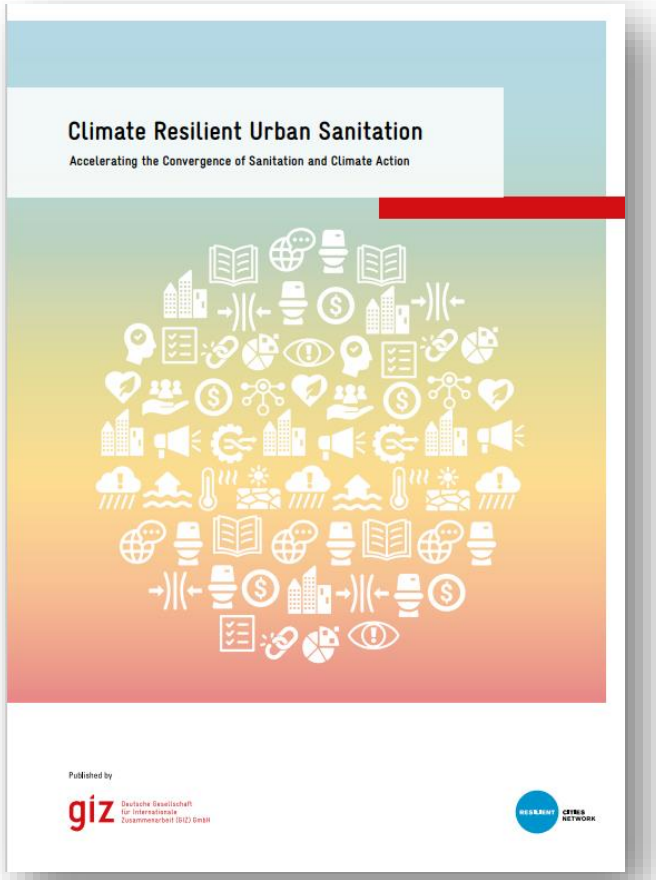
Executive Summary

Sustainable Sanitation is highly relevant for the achievement of three international frameworks: The Paris Agreement, the Sendai Framework and the 2030 Agenda. A sustainable future is impossible without universal access to safe, well-functioning and context-appropriate sanitation services. Until this is achieved, sanitation shortfalls will increase the risks human populations face from climate change and climate-related disasters. Climate change also has a negative impact on water availability and quality as well as on sanitation infrastructure making resilience of sanitation systems a top priority. A combination of technical measures such as resource-efficient systems and flood-proof sanitation with improved planning, capacity building and increased awareness offers best possibilities of adapting to climate-related hazards. Investments in sustainable sanitation can not only minimize these risks but also make substantial cuts in greenhouse gas emissions and provide additional co-benefits through water and energy efficiency measures, replacing synthetic fertilizers as well as avoiding methane emissions. The use of renewable energy from sustainable sanitation systems in form of biogas, hydropower, heat recovery or directly from excreta offers additional mitigation potential. Several tools are available to strengthen climate assessment, adaptation planning and to identify mitigation measures. Despite this, sanitation has been largely overlooked in climate mitigation and adaptation strategies – and in the disbursement of finance for climate action and disaster risk reduction. That is why a joint effort is needed to draw the attention of decision makers to sustainable sanitation and its importance for climate mitigation and adaptation.

SuSanA

Opportunities for sustainable sanitation in climate action

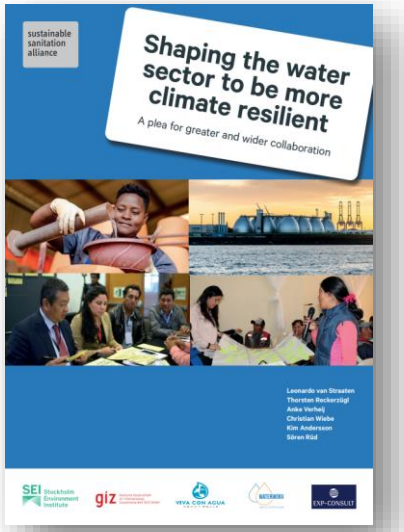
WG 3 factsheet


Climate Resilient Urban Sanitation

Accelerating the Convergence of Sanitation and Climate Action

Published by

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH


sustainable sanitation alliance

Shaping the water sector to be more climate resilient

A plea for greater and wider collaboration

Leonardo van Straaten
Thorsten Reckerzügl
Anke Verhaij
Christian Wabe
Kim Andersson
Sören Rüd

SEI Stockholm Environment Institute giz VEWA CDM AQUA WATERNET EXP-CONSULT


UTS

Urban sanitation and climate change:
A public service at risk

Landscape study
Prepared for the Bill and Melinda Gates Foundation

UTS Institute for Sustainable Futures
August 2022

isf.uts.edu.au

Key Sector Publications

Thank you!

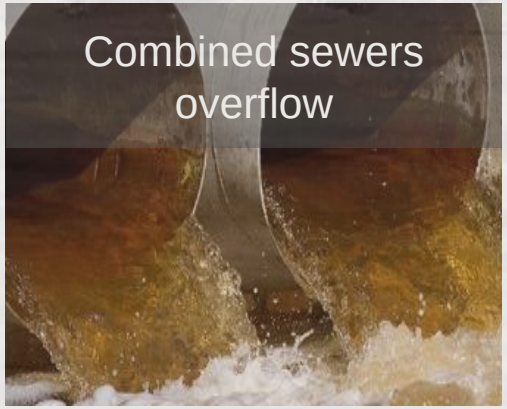
Urban sanitation and climate change: a public service at risk

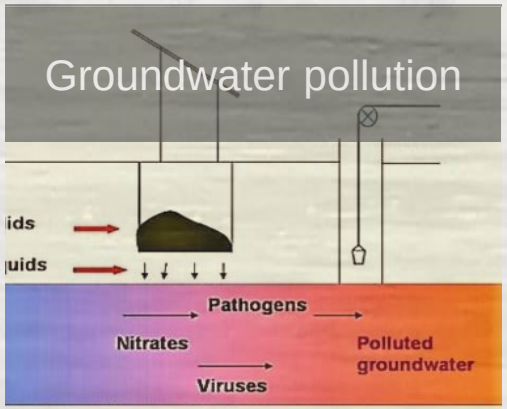
Landscape study follow-up

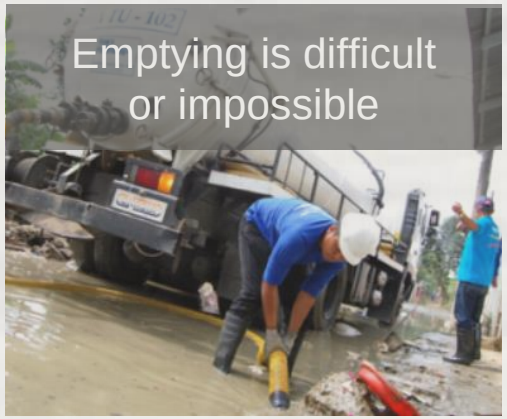
Professor Juliet Willetts and Avni Kumar

UTS Institute for Sustainable Futures

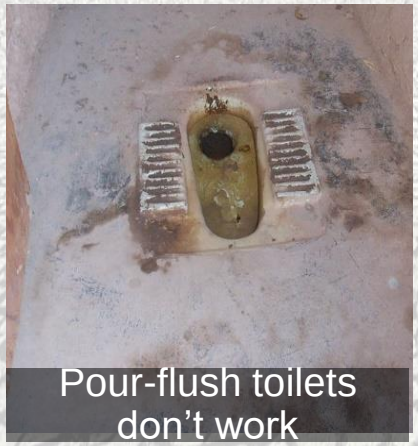
Climate change impacts on urban sanitation are significant







Too much water….



Too little water….

Photo credits: Juliet Willetts (left, middle); https://www.homeserve.com/en-us/blog/how-to/fix-clogged-sewer-line/; (bottom right) https://www.talmudology.com/jeremybrownmdgmailcom/2019 (top right)

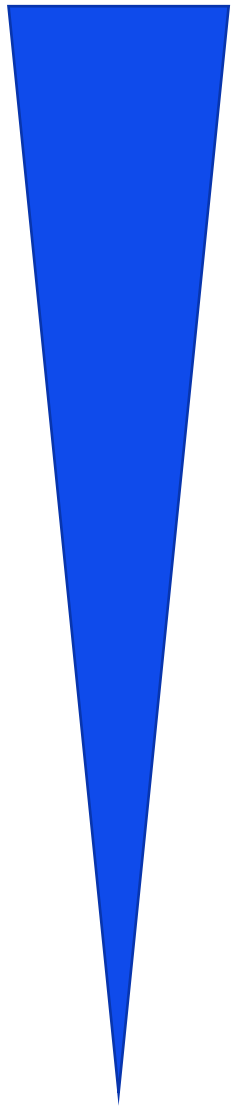
Photo credits: Ceasar Onen (bottom left); Universitas Indonesia (bottom middle); https://weather.com/science/environment/news/2018-04-03-sea-level-rise-wastewater-treatment-sewage-plants (bottom middle); Nuhu Amin (bottom right);https://www.mayniladwater.com.ph/maynilad-helps-clean-up-flood-swept-provident-village (top middle)

Challenges faced by cities

1

Significant challenges: Institutions, policy and planning

Ordered from most significant challenge (by in-country actors)



Lack of **coordinated policies** and wider coordination between climate, disaster and sanitation

Lack of **frameworks to monitor** or measure climate resilience of sanitation services

Poor **integration** of sanitation into urban resilience planning

Significant challenges: Financing

Ordered from most significant challenge (by in-country actors)

Sanitation **budgets do not account for the costs of resilience** and adaptation (both increased capex and opex)

Lack of **evidence on economic impacts** of non-resilient sanitation

Low capacity to estimate the costs involved in implementing climate resilient sanitation policies and plans

Significant challenges: Infrastructure and services

Ordered from most significant challenge (by in-country actors)

Lack of **understanding** on how to deliver climate resilient city-wise inclusive sanitation

Limited **access to climate data** to establish baseline conditions and prepare for the future

Lack of **evidence, guidance and design standards** for climate resilient infrastructure/technologies

Significant challenges: Users

Ordered from most significant challenge (by in-country actors)

Poor **use of data from households** and communities by local governments

Lack of known **effective behaviour change strategies** for climate resilient sanitation

Lack of community-level **awareness about climate change**

2

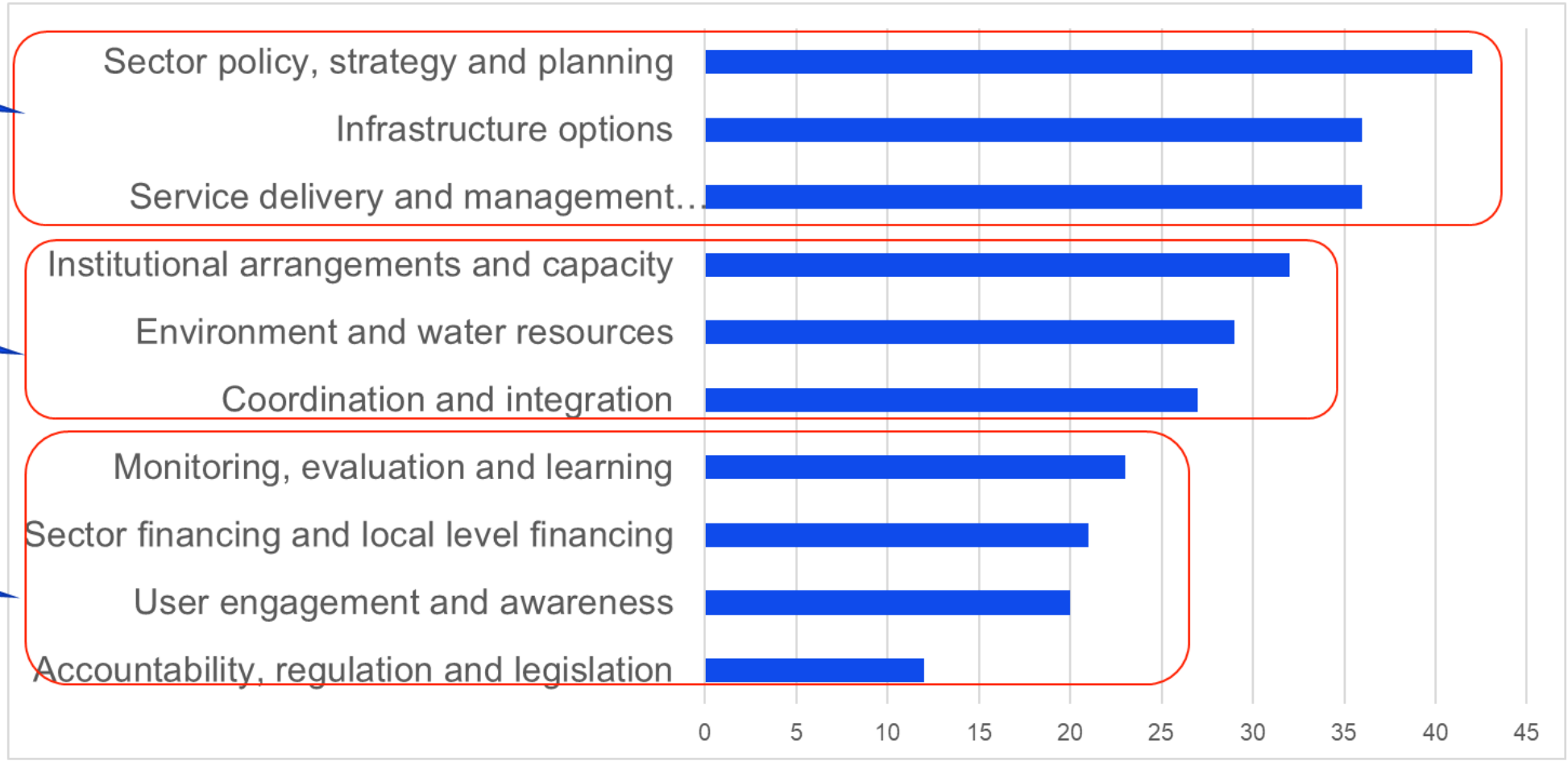
Focus areas for resilient sanitation

Where are cities and development agencies focused on now to support more climate resilient sanitation?

Most focus to date

Some focus to date

Limited focus to date



AK

Understanding ‘resilience’

“The capacity of ***interconnected social, economic and ecological systems*** *to cope with a hazardous event, trend or disturbance,* ***responding or reorganising*** *in ways that* ***maintain their essential function****, identity and structure.*

Resilience is a positive attribute when it ***maintains capacity for adaptation, learning and/or transformation” (IPCC, 2021)***

https://www.ipcc.ch/assessment-report/ar6/

AK

Key **focus areas** for climate resilient sanitation

1 INSTITUTIONS, POLICY AND PLANNING

- Policy integration of climate and sanitation
- Risk- and vulnerability- informed planning and wider urban development links
- Leadership and political will
- Institutional responsibilities

2 FINANCE

- Financing along the sanitation chain (households, service providers, city governments) for:
  - Preventive/adaptation measures
  - Disaster response

3 INFRASTRUCTURE AND SERVICE PROVISION

- Robust or repairable sanitation infrastructure
- Responsiveness and flexibility in service delivery and treatment operations
- Integration across urban water cycle, including drainage
- Monitoring for continual adaptation

4 USERS

- User engagement, awareness and capacity to cope and adapt
- Disaster response and support

Risk and vulnerability-informed planning, and increased coordination and role clarity are needed for climate resilient sanitation

1 INSTITUTIONS, POLICY AND PLANNING

- Policy integration of climate and sanitation
- Risk- and vulnerability- informed planning and wider urban development links
- Leadership and political will
- Institutional responsibilities

In **Bangladesh**, institutional reform to better link disaster risk reduction, emergency response and sanitation

In **Zambia**, building political will to monitor sanitation-related GHG emissions and coordinate institutions on climate risk assessments

Malaysia is formulating a national sewerage master plan with criteria and interventions that integrate climate risk. For instance, mapping the climate risk vulnerability of urban areas to prioritise different zones and make decisions on the interventions needed for each zone.

Financing for both preventive action and response is needed for climate resilient sanitation

In **Indonesia**, adaptation response options from local government included subsidies for low-income households to improve the quality of sanitation containment systems

The Water Authority of **Fiji** is factoring climate risk costs in different parts of their work, including upgrading of their wastewater infrastructure.

2 FINANCE

- Financing along the sanitation chain (households, service providers, city governments) for:
  - Preventive/adaptation measures
  - Disaster response

Use of carbon credits is being explored in relation to container-based sanitation based on emissions reduction

AK

Robust, repairable or portable infrastructure and flexible responsive operation are needed for climate resilient sanitation

In **Bolivia and Peru**, using GIS based tools to predict climate events and adapt urban planning including sanitation

3 INFRASTRUCTURE AND SERVICE PROVISION

- Robust or repairable sanitation infrastructure
- Responsiveness and flexibility in service delivery and treatment operations
- Integration across urban water cycle, including drainage
- Monitoring for continual adaptation

In **India**, city governments working on provision of scheduled desludging, which is beneficial in flood-prone areas.

In **Zambia,** provision of good onsite sanitation in drought-prone areas, which are reliant on groundwater

Proactive two-way engagement with users and early warning systems are needed for climate resilient sanitation

In **Bangladesh**, Risk Communication and Community Engagement (RCCE) strategy for urban and rural sanitation

Need to also include community and grassroots organisations in addressing climate change…[…]….They are also very good at collecting reliable community level data which can serve as evidence for making decisions at the local government level.

In **Zambia**, incorporating user experiences while designing flood-prone toilets and piloting these models in the community

4 **USERS**

- User engagement, awareness and capacity to cope and adapt
- Disaster response and support

The big lesson is that we can't have a blueprint of what makes things resilient – we need people to be critically analysing their situation, and tailoring response to their experiences. ..[…].., it is much less about prescriptive infrastructure management but more adaptive analysis and how to implement climate change adaptations

[Research participant, Landscape study]

3

Knowledge and learning agenda

Knowledge and learning agenda

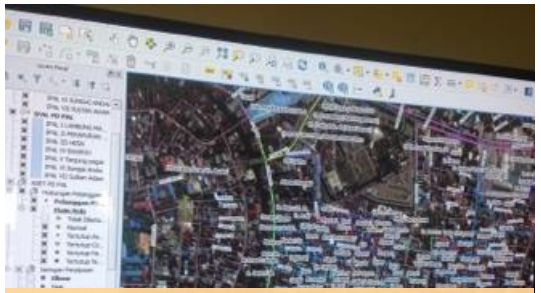
Sharing experiences across countries and regions

Local level data collection by government and implementers

Combined implementation and research initiatives

Evidence to inform policy-development

Evidence to convince policymakers to invest in climate resilience



Academic research

Evidence to convince **policy-makers** and to **inform policy development**

Evidence to convince policy-makers to increase attention and investment to address climate change and urban sanitation.

- **Numbers of people** with low sanitation service level access *and* who frequently experience climate hazards? (globally, nationally, locally)
- **Scale and significance of public health impacts** when sanitation systems are adversely affected by climate hazards
- **Service chain impacts** of climate change and climate hazards including all parts of the chain, both for onsite and offsite systems
- **Economic costs of damage and disruption** to the sanitation service chain from climate hazards
- **Quantified benefits of climate risk considerations** when designing sanitation systems and infrastructure

Evidence to support policy development:

- **Clarity on the financing costs**, particularly the additional cost, for climate resilient sanitation in different climate contexts (urban, coastal, low-lying, hilly/mountainous)
- **Frameworks, information systems and indicators** to enable national level monitoring of climate impacts and the relative resilience of urban sanitation services and systems
- **Analysis of emissions** along the sanitation chain
- **Tools and good practice** for effective translation of policy to on-the-ground implementation
- **Understanding potential for pathogen transmission** and human exposure through drainage systems, groundwater and surface water, including mapping to predict spread during climate events, and responses to address high-risk situations and locations

Combined implementation and research initiatives

Institutional

- Implementing strategies to strengthen **institutional capacity** to implement and monitor resilient service delivery
- **Cross-sectoral coordination** of agriculture and wastewater to support mitigation solutions (e.g. biogas)
- Initiatives to **integrate water supply, sanitation and drainage** to increase climate resilience
- Effective communications to sanitation stakeholders (such as CSOs, service providers) on **disaster preparedness and recovery**, not just response
- Develop and apply **frameworks and indicators to monitor climate resilience** of sanitation infrastructure and services
- Incorporate damage to sanitation facilities in **disaster policies and processes**, appropriately recognising the relevant repair costs
- Identifying the knowledge gaps and **capacity building needs of urban planners/engineers** to retrofit and adapt existing infrastructure

Financing

- Feasibility of **mobilising disaster management budgets** for disaster response in urban sanitation, including assessment of how short-term implementation of these budgets can also support long-term improvements
- **Experimentation with financial models** to ensure sustainability and viability of different types of service providers given climate hazards
- Trial business models that **support private sector** to incorporate climate considerations

Infrastructure and service provision

- Implementing and evaluating **nature-based sanitation solutions**
- In-situ implementation and **evaluation of technologies** and infrastructure in different climatic conditions, including assessing the value of building in redundancy
- Implementation and **evaluation of adaptation responses** (in infrastructure or management arrangements)
- Use of **city-level risk assessments** to inform adapted plans for service delivery
- Evaluate different strategies to **strengthen capacity** of service providers in preparedness for events
- **Trial innovations** in climate resilient FSM
- Experimentation with the role of **container-based sanitation** to improve resilience

User engagement

- Implement and evaluate strategies to **raise awareness** amongst households on climate change and impacts on sanitation
- Trial **methods to shift household behaviour** to proactively manage sanitation facilities ahead of events
- Pilot strategies to **overcome reluctance of users to invest** in climate resilient sanitation facilities
- **Communication of the costs** of climate resilient sanitation infrastructure to help users to make better informed decisions
- Implementing successful learnings from the open defecation free movement, which encouraged **community engagement**, and adopting these principles to mobilize users for climate resilient sanitation

Local level data collection

Institutional
• Overlay mapping of sanitation facilities, socio-economic levels, service levels and climate hazards • Local climate data, scenarios and predictions to inform planning • Monitoring approaches to track climate resilience of service delivery at the city and household level • Incorporating climate risks into planning • Data-sharing on climate migrants to support service planning • Effects of climate related urban migration on urban dwellers and sanitation services
Financing
• Financing costs for climate resilient infrastructure, including additional costs compared with business as usual • Repair costs for sanitation facilities damaged by climate events
Infrastructure and service provision
• Impacts or damage on the sanitation chain in relevant climate events • Mapping of onsite systems and sewers to predict spread of contamination during flooding events • Data from diverse geographical contexts on emissions from onsite sanitation systems, to compare benefits of certain infrastructure options over others
User engagement
• Experiences of community groups' (women, people with disabilities, other vulnerable groups) impacts on sanitation services • Effects on people's lives of climate impacts on sanitation, including the secondary impacts on livelihoods, health, migration etc.

Academic research

Institutional

- How can overlay maps of sanitation, service levels, climate hazards, socio-economic and other data inform planning processes?
- What are examples of adaptation actions that improve sanitation infrastructure resilience and promote preventive solutions?
- What are appropriate ways to integrate water supply, sanitation and drainage in practice, tailored to local context?
- What are successful and unsuccessful adaptation measures to support more resilient urban sanitation services?
- What frameworks & information systems enable national level monitoring of climate impacts and resilience of urban sanitation?
- What frameworks support city-level risk assessments to inform planning of service delivery?
- At country level or city level, what are the capacity building needs to incorporate climate risks into policies or service planning?

Financing

- What financial models for service providers can support provision given climate hazards, where user charges may be insufficient?
- What are the financing costs for climate resilient sanitation (in urban, coastal, low-lying contexts)? What is the additional cost?
- What opportunities capitalise on climate finance to bridge the gap between costs of adaptation and households ability to pay?

Infrastructure and service provision

- If and how are current services coping with climate variability? How can this inform adaptation to uncertainty of climate change?
- What are expected impacts or damage on urban sanitation infrastructure (onsite systems and sewerage) along the whole chain?
- What are the emissions along the sanitation chain? How can emissions reduction and improved resilience be achieved together?
- What are the organisational level impacts of different climate hazards for service providers? (e.g. coping capacity and productivity of employees of a utility during consecutive days of heavy rainfall and flooding)
- What is the role of nature-based or green-based solutions in adapting sanitation infrastructure and services to climate change?
- What technologies are needed for different contexts and climatic conditions? (coastal, low-lying etc.)?
- What indicators can measure the climate resilience of sanitation infrastructure across varying climatic, geographic contexts?

User engagement

- What are experiences of different community members (women, people with disabilities, other vulnerable groups) of climate change impacts on sanitation services?
- How are people's lives affected by climate change impacts on sanitation, including the secondary impacts on livelihoods, health, migration etc.?
- How can an understanding of the costs of climate resilient sanitation infrastructure help users to make better decisions?

Sharing experiences across countries and regions

Institutional
• Case studies of successful national-level institutional coordination; cross-sectoral coordination with agriculture; coordination with local level disaster management • Examples of convincing policymakers to act using data/evidence of impacts on services and related costs; WASH ministers communicating outside the sector to others ministers (environment, food and agriculture) • Experiences to develop the capacity of service providers (such as masons etc.) to build climate resilient infrastructure; using climate data and climate scenarios for city-level sanitation planning; monitoring climate resilient service delivery at the city level • Innovations in FSM service delivery arrangements that enhance adaptation • Experiences of translating policy to on-the-ground implementation and in adaptive or dynamic decision making by regulators
Financing
• Experiences of other sectors (such as energy, agriculture) in accessing climate finance
Infrastructure and service provision
• Successful and unsuccessful adaptation responses • Lessons from infrastructure built without consideration of climate change • Emerging responses to modify and adapt existing infrastructure to be more resilient • Experiences and results of nature-based solutions • Experiences of addressing flood impacts on contamination of ground and surface water • Experiences of improving faecal sludge management to reduce emissions and contamination • Examples of circular economy applications and innovations that address resilience • Examples of use of container-based sanitation to increase resilience • Cases of effective integration across the urban water cycle
User engagement
• Methods to raise awareness among diverse users on climate change, impacts and rationale to invest

3

Actions

Actions to take forward

ACTION 1: Engage with climate policy and better coordinate with urban resilience and other sectors

ACTION 2: Shift and test new policy and practice to incorporate climate risks and resilience

ACTION 3: Consolidate and continue to build the evidence base on climate resilient urban sanitation

ACTION 4: Facilitate rapid learning and capacity building on key risks and adaptation responses

Thank you

Urban sanitation and climate change: A public service at risk bit.ly/3U10Gop

Climate resilient urban sanitation in Indonesia:

- **Report:**https://www.unicef.org/indonesia/reports/climate-resilient-urban-sanitation-indonesia-hazards-impacts-and-responses-four-cities
- **Journal paper**:https://doi.org/10.1177%2F2399808321098740
- **Podcast**: https://anchor.fm/paperstopractice/episodes/Episode-6-Action-for-resilient-citywide-sanitation-co-developed-with-local-governments-in-Indonesia-e1qe4m9/a-a845fke

Contact: Juliet.Willetts@uts.edu.au; Avni.Kumar@uts.edu.au

Upcoming CoP events

Series on Climate Resilient Design Measures - End of August/ September, date tbc.

Technical information and practical guidelines that can help water and sanitation projects effectively incorporate climate resilient design measures. Topics to be covered include *Climate proofing WASH infrastructure, Nature based-solutions or Monitoring systems*, such as early warning systems.

A call for water demand during a period of climate crisis: A virtual discussion– October, date tbc

Mitigating climate related negative effects require managing both sides of the equation – supply and demand. However, how can water demand be prioritized in a context where supply is more attractive politically? Join us in this discussion as we seek to find a way forward together.

Understanding climate risks and vulnerabilities - Beginning of November, date tbc

This webinar will explore ways to unify methods of assessment and on how to understand and capitalize on local knowledge, amongst other technical topics of relevance.

Please contact us if you would like to contribute to these sessions or other topics of relevance!

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Diana Cáceres (CoP management)
diana.caceres@outlook.com

THANK YOU