

**CHAIRE AGROPARISTECH
« SUEZ – GENERAL MANAGEMENT OF URBAN WATER AND SANITATION SERVICES »**

How is climate change adaptation transforming water and sanitation services, governance, management and design?

A focus on African cities

International Workshop, Accra Ghana

5th and 6th June 2024

2023 is about to become the hottest year on record on our planet. Climate change and its effects are set to accelerate, urging human societies to take action. Meanwhile, the challenge of providing safe water and sanitation to all remains daunting in many locations. For decades, many cities in Africa and Asia have been struggling to expand quality service in the face of rapid and chaotic urbanization, population growth, lack of capacity and resources. Climate change now heightens uncertainty. By nurturing slow-moving threats, such as rising sea levels and disruption of rainfall regimes, and by increasing the probability of extreme events such as droughts, floodings, and fires, it feeds population displacements and potentially contributes to political unrest. How does this evolution push actors of the water sector to think differently about how to design and manage urban water utilities? How can they adapt to a dramatic but uncertain change?

Scientific workshops organized by the 'Water for All' Chair bring together urban water utilities managers, experts and scholars to think about what would be the right path for further research and actions to stay on track to reach the SDGs. The 4th scientific workshop was held in 2021 and explored how to overcome institutional and organizational barriers to sanitation (Colon, Rieu, 2022). The need to devote the 5th edition to the broader challenge of provision of water and sanitation services in the light of accelerating climate change seems quite obvious. For the first time, the seminar will be held in Africa, to foster participation of water stakeholders based in this continent and case studies from African studies.

The Scientific Committee invites participants to submit short papers on innovative work exploring the theme of the workshop and to open discussions. We welcome data driven research and pluridisciplinary approaches. The following (but not exclusive) questions may be addressed:

1 What do we know about the impact of climate change at the local scale?

- What will be the impact of climate change on water and sanitation utilities ? What are the likely impacts on water resources (in quality and quantity) and water infrastructure (as they may be flooded, damaged, or lead to sources of pollution after extreme weather events).
- What do we know about the translation of (inter)national modelling to local territories? Who are in charge of it ? How to consider the circulation of expertise in water and sanitation the long-term ? To what extent is there any room for indigenous knowledge ? How does indigenous water knowledge qualify and integrate the effects of climate change ?
- How can we better anticipate the effects of climate change?

2 How to adapt existing urban water systems?

- How, and with who to assess the resilience and capacity to adapt of urban water and sanitation systems?
- To what extent do we need to question the golden standard of centralized networks and support off-grid solutions (Schelbert et al, 2023)?
- How local traditional knowledge may help designing adaptation strategies dealing with too little or too much water? How this traditional knowledge circulates?
- What to expect from unconventional sources of water such as wastewater reuse, desalinization and rainwater harvesting (Collard et al, 2019, Miörner et al, 2023; Williams et al, 2023)?
- Is the concept of water circularity useful in operational terms?
- How far may digital transformation really contribute to more efficient and more resilient urban water systems (Daniel et al, 2023)?

Urban water systems include infrastructure, water resources as well as human, financial, organizational and institutional resources.

3 How to adapt water utilities management and water sector governance?

- How do urban water and sanitation utilities adapt to climate change (Danilenko et al, 2010)?
- Water demand may change, planning on the long term may become both more necessary and difficult. How to adapt planning processes accordingly?
- How to revise existing management models? For instance, do we need to change the meaning of what is a well-performing water and sanitation utility today?
- What new organizations, institutions, expertise and knowledge, jobs, and tools may we need to adopt? Governance issues should be tackled at all levels (macro, meso, micro).
- How to deal with tensions between water uses (agriculture, industry, energy, water supply, ecosystems), and better articulate water resource management and water utilities management in practice?
- How to evolve towards a more inclusive management of water and sanitation utilities (taking into account stakeholders, users in the governance)? Regarding users, how deal with affordability, equity, right to access, users' rights and duties?
- What financing mechanisms may fund adaptation strategies for water and sanitation utilities?

Calendar:

Mid October: launch of the call

November 30th: submission deadline for short papers (academic or operational) and posters' project

February: results

14 April: submission for long papers

17 May: submission of a power point presentations

5-6 June: Each selected speaker is expected to fly to Accra to attend the workshop, make a 10-min presentation, and prepare a 5 min discussion of speakers of the same session, and take part in the workshop discussions.

Funding:

Traveling expenses (flight + housing) for some selected Doctoral and post doctorals scholars based in African universities will be funded.

Output:

Short papers will be published on AgroParisTech website. Best papers may be pushed to be published in a Journal.

Paper submission guidelines

- i) Extended abstracts are welcomed from participants across Africa in either English or French
- ii) Abstracts or accepted full papers, or posters should be sent to: marine.colon@agroparistech.fr and christoph.luethi@eawag.ch as pdf files
- iii) The Scientific committee will decide if a paper can be accepted for presentation at the workshop or for the poster sessions
- iv) Accepted papers for presentation are to be presented in PowerPoint of not more than 5 slides.

Length of papers in English or French:

- Short papers: 4 pages max (arial 11 1,2 interligne), 1,000 words maximum
- Long paper: 8,000 words max

Short academic paper:

Outline :

1. Purpose of the paper ; 2. Methodology; 3. Main findings; 4. Contribution; 5. References

Short Operational papers

Presentation of a case study:

Outline:

1. Purpose of the paper; 2. Contribution to the theme of the workshop; 3. Context; 4. Main lessons learnt; 5. How the case may help other utilities; 6. References

Poster Size A0

Venue: Accra, Ghana

Scientific committee members

Eugene Appiah-Effah, RWESCK / KNUST; Esi Awuah, RWESCK / KNUST; Pierre Bauby, Observatoire de l'action publique de la Fondation Jean-Jaurès ; Laurent Béduneau-Wang, Africa Business School - University Mohamed VI Polytechnique (ABS-UM6P); Marine Colon, AgroParisTech, UMR G-EAU, MRM ; Clément Frenoux, AFD ; Christoph Lüthi, Sandec ; Sampson Oduro-Kwarteng, RWESCK / KNUST ; Pierre-Louis Mayaux, CIRAD, UMR G-EAU
Thierry Rieu, UMR G-EAU ; Klaas Schwartz, IHE Delft; Guillaume Stahl, Suez

Organisation committee

Eugene Appiah-Effah, RWESCK / KNUST; Francine Audouy, AgroParisTech, UMR G-EAU ; Esi Awuah, RWESCK / KNUST; Sandra Ceschin, AgroParisTech ; Marine Colon, AgroParisTech, UMR G-EAU, MRM; Wilfried Ligan, AgroParisTech; Sampson Oduro-Kwarteng, RWESCK / KNUST

Funding

AgroParisTech (Chaire Water for All AgroParisTech-SUEZ, foundation SUEZ), AFD

List of references

Collard A-L, Ait-Mouheb N, Barbier R, 2019, The REUSE, as a reinvention of wastewater ?. IWA International Conference on Water Reclamation and Reuse, Berlin, Germany.

Colon M, Rieu T., 2022, Overcoming Institutional and Organisational Barriers to Sanitation: What's New? technical report, AFD

Daniel, I., Ajami, N.K., Castelletti, A. et al. A survey of water utilities' digital transformation: drivers, impacts, and enabling technologies. *Npj Clean Water* 6, 51 (2023). <https://doi.org/10.1038/s41545-023-00265-7>

Danilenko, A, Dickson, E et Jacobsen M, 2010, *Climate Change and Urban Water Utilities: Challenges and Opportunities*, Working Water Note 24, by Water Sector Board of the World Bank Sustainable Development Network.

Miörner, J.; Schelbert, V.; Lüthi, C.; Binz, C., 2023, On-site Water Reuse Systems in Bengaluru, India. Lighthouse Synthesis Report. Eawag. www.sandec.ch/lighthouse

Schelbert, V., Binz, C. and Lüthi, C. 2023. Lighthouse Initiatives in the Urban Water and Sanitation Sector, Final Report. Eawag 71 pp. www.sandec.ch/lighthouse

Williams, J.; Beveridge, R. and Mayaux P.-L. 2023. Unconventional waters: A critical understanding of desalination and wastewater reuse. *Water Alternatives* 16(2): 429-443