

## Editorial

### INTRODUCTION

For decades the sustainability crisis has been perceived as something to be dealt with in the future. However, the Australian wildfire crisis and then the corona crisis in 2020 have nudged us to handle the problems sooner rather than later. While a lot of the sustainability-focus has been on the effect of carbon dioxide on climate change, water sustainability issues have lived more of a life in the shadows. The challenges of water pollution, floods and droughts have shown to be much more complex and difficult to track on a global scale. A key reason for this is that water sustainability crises come in many shapes and forms and are almost always primarily local.

However, as the same patterns of water problems repeat all over the world, it is still meaningful to speak of a global water crisis. Additionally, while many associate the climate crisis with weather, it is clear from a water sector perspective that water is a substantial component of said weather. Hence, the water ecosystem is pressured both due to global climate impact and local unsustainable practices. The solutions to many of these problems have to be designed and implemented locally by people working locally. There is no 'one size fits all' when it comes to water. The work must be done on the ground locally and adapted to the specific local conditions such as local infrastructure, local ecosystems and local society.

### THE WATER TRANSFORMATION

This means that the water sustainability transformation consists of thousands if not millions of transformations carried out locally and with local competences. As we progress through the crises and the process of finding solutions, it becomes increasingly apparent that the solutions require a

high level of systemic thinking and working. One factor making the problem more difficult to handle is that solutions are only possible by crossing existing borders; traditional country borders but also various institutional boundaries such as municipal boundaries, organizational boundaries of responsibilities and even across different knowledge fields, i.e. across technical fields as well as involving the social sciences. Water technology will continue to be important, but the complexity of transformation requires a new type of insight and ability to collaborate.

To succeed requires a paradigm shift from the traditional water engineering focused management to a systems approach involving multidisciplinary research between engineering and social science, economics and ecology. Indeed, we have seen significant advances in research and practices towards this direction, such as in the fields of water-energy nexus, water-energy-ecology nexus and sustainable urban water management, providing valuable insights for addressing these systemic issues.

### NEW AIMS AND SCOPE FOR AQUA

To provide the state-of-the-art research, technologies and case studies for the new paradigm of sustainable water management, our journal (previously known as *Journal of Water Supply: Research and Technology - AQUA*) will change its name to *AQUA - Water Infrastructure, Ecosystems and Society* from 2021. Effective immediately, we have also redefined our scope covering new concepts, technologies and methods for the design, operation, management and governance of water infrastructures.

The key knowledge clusters of the scope are as follows:

#### Infrastructure

Our water infrastructures have been engineered to provide safe and secure water supply against threats of water pollution and droughts. Faced with challenges such as urbanization, population growth, climate change and aging

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infrastructure, there is an increasing awareness that our water infrastructures need to be not only reliable but also anti-fragile and sustainable. This means that as we maintain, refurbish or exchange the water infrastructure, we need to simultaneously widen the perspective into the infrastructure of the future. This challenge requires continuous attention and ingenuity. While asset management has so far focused on maximizing the service time of our infrastructural water assets, we need to include additional aspects such as e.g. life cycle assessment and natural capital in our business cases.

### **Ecosystems**

Traditionally the professional water sector has had a shallow understanding of ecosystems and the impact of our industrialized water usage. The primary focus has so far been on providing water for our private and industrial consumers. In this paradigm we have seen water as a free and available resource that can be extracted from lakes, rivers and groundwater without much regard to the consequences for the natural world. This must change as the natural world comes increasingly under pressure, at the verge of collapse and even collapsing in many places. A silent collapse that we might fail to realize if we are not sufficiently attentive. We have mistaken nature to be infinitely robust and thereby brought it to a lower state of functioning. Hence, moving forward we must pay better attention and act to find solutions that do not degrade the natural systems – not only from a compassionate perspective but ultimately to secure our own survival as well and hopefully eventually for a better thriving humanity.

### **Society**

Finding good water solutions aligned with the principles in frameworks such as integrated water resources management (IWRM) requires an approach where the water sector integrates itself better into the rest of society. We need to be better at co-creative stakeholder collaboration. In our classical engineering mindset, we might deceive ourselves to believe that we are alone in possession of the best solutions; but only when we deeply understand the needs of our stakeholders, the society we serve, and the surrounding natural world will we be able to invent solutions that work for 'the whole'. Any future water project must be carried out in a way that involves all relevant

stakeholders including ecosystems. This is a huge challenge from where we stand now. We need to learn a new set of competences and the success of the transformation hinges on our learning process. It requires an inclusive full-system long-term perspective on all issues relating to water. This is truly non-trivial.

*AQUA* will work to support water utilities and municipalities transition from today to the sustainable water supply of the future. The transition includes exchanging old systems gradually and intelligently based on systematic asset management, preparing the new system for the effects of climate change, ensuring a human water supply without compromising ecosystems, and engaging all relevant stakeholders including so far underrepresented stakeholders such as women, indigenous people and minorities to ensure social and ecological welfare.

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## **INVITATION TO CONTRIBUTE**

We look for scientific and technical papers suggesting solutions to providing sustainable water supply, such as by exploring new opportunities by reclaimed water supply, grey-water supply and rainwater harvesting, and reporting research and development in both water technology and management. In each issue of the journal, we will select one outstanding paper to be the 'Editor's Choice' with explanations of why it has been chosen. We will make this paper publicly available to benefit the wider community.

As Editors-in-Chief, we recognize the value of a high-quality, unbiased and efficient peer review process. As such, we have established our editorial team to comprise two Managing Editors and 14 Associate Editors. The joint team represent leadership within all the new fields of knowledge, it represents both academia and industry and has a global representation of the leadership in our field.


We hope that the new set-up will inspire dialogue on how to succeed everywhere with the sustainability transformation. We hope the journal will work as a meeting place where the industry provides case studies, openly shares challenges and difficulties and where academia listens attentively and contributes with relevant research results towards finding great solutions. We also hope that this will provide a wellspring

of new insights and inspiration to better the softer field of water management. The management aspect is new to the journal that has so far been primarily technical, but we hope also to succeed in providing a space for learning from the fields of social sciences on our pages.

We are looking forward to inviting new and former readers and authors to the journal and hope you will support the efforts to make this an exciting and enriching dialogue. We

are excited to start the new chapter of the journal and we hope you will join us and the new Editorial Board in this important task.

**Editors-in-Chief**

**Shuming Liu** , School of Environment,  
Tsinghua University, China

**Pernille Ingildsen**, Hillerød Utility, Denmark