EUROPEAN ASSOCIATION
OF PUBLIC WATER OPERATORS
10 YEARS OF COLLABORATION
FOR THE GENERAL INTEREST

10-YEAR PUBLICATION

THE PUBLIC WATER SERVICES OF THE FUTURE

WITHIN **SOCIETY** FOR **SUSTAINABILITY**

Design: EU-Turn

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FOREWORD

LETTER FROM THE PRESIDENT

In 2019, Aqua Publica Europea celebrates its tenth anniversary: a great opportunity to highlight the road we have come and, as well as to reflect on how to get prepared to address future challenges.

Ten years ago, a handful of European public water operators gathered and made the decision to work together, under a set of shared values: water is a common good that needs to be managed with the general interest by efficient public services under the responsibility of elected officials. At the time, Aqua Publica Europea's Founding Charter was established to spell out these commitments and to lead the association throughout the years.

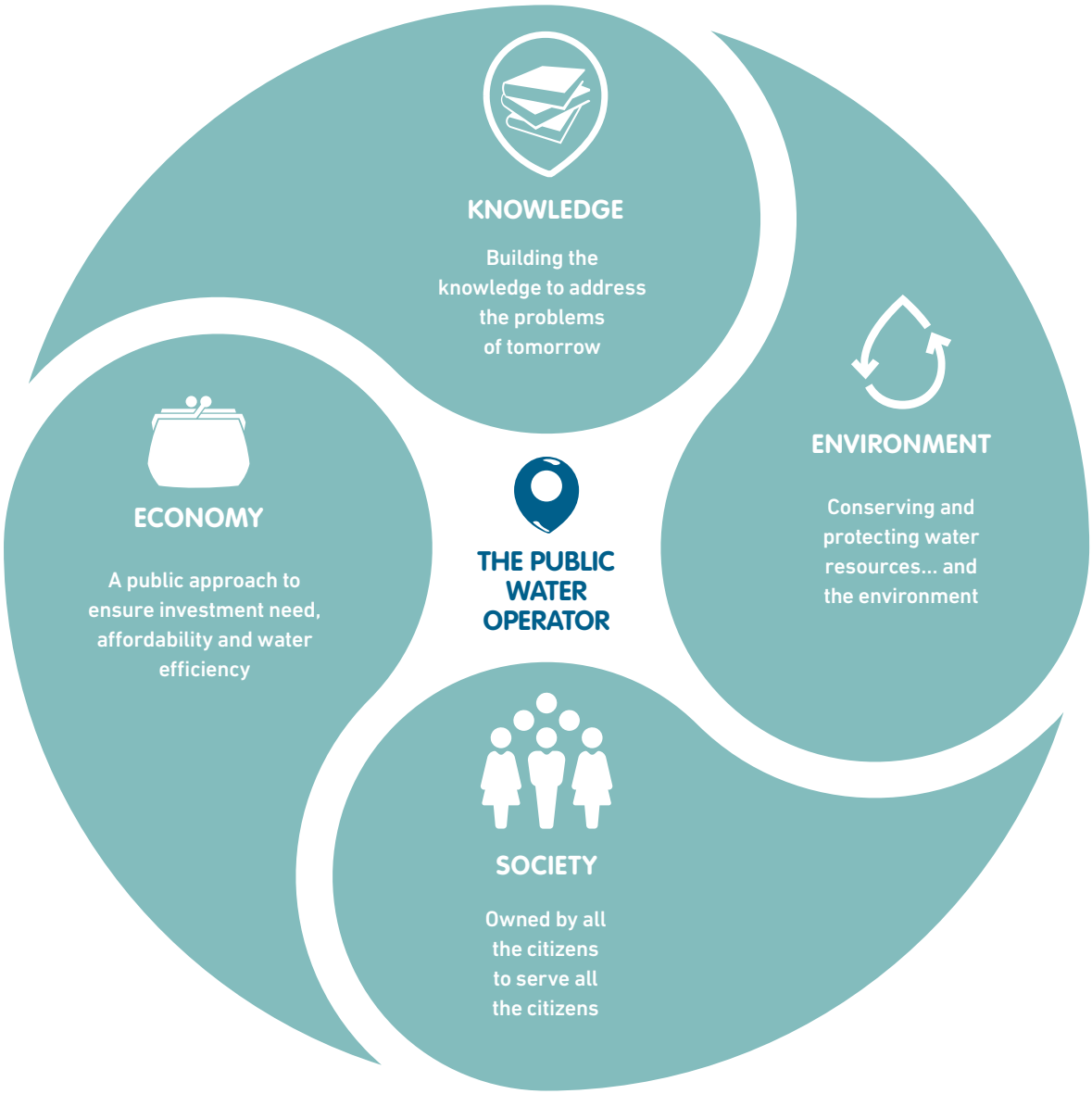
Since then, the membership has been growing steadily, and today reaches 65 members from 13 countries, providing water and sanitation services to over 70 million people in Europe. By subscribing to the Founding Charter, each member commits to be not only an efficient industrial actor, but also to be responsible towards the environment and society at large. Public water operators dedicate their efforts to building a more sustainable future by protecting water resources and the environment surrounding them; to engage with the citizens that they respond to through excellent services that are accountable and transparent; to build solid and ever-improving services with smart investments, key partnerships and a forward-looking mindset; and to share their knowledge, experience and expertise not only with their peers but also with other public actors and a wide range of stakeholders, from academia to the business world.

In its first ten years, Aqua Publica Europea has managed to place itself as a recognised actor at European and international levels and to effectively represent the values and approaches of its members whilst also providing a structured space for peer exchanges. The success lies in the creation of a fruitful dialogue between political and technical levels, particularly paramount when it comes to the water sector. Based on this continuous reflection on the social implication of each technical choice, Aqua Publica was able to contribute to rich and informed dialogues in diverse fora towards an integrated approach to sustainability.

More than ever, public water operators, throughout Europe, are and will continue to be innovative and committed to their communities with a long term vision. Aqua Publica Europea, their association, will continue to strive to provide them with a platform for discussion and a joint external voice for many years to come.

Célia Blauel
President of Aqua Publica Europea
President of Eau de Paris
Deputy-Mayor of the City of Paris

TOWARDS AN ECOSYSTEMIC ENTERPRISE FOR SUSTAINABILITY?



INTRODUCTION

THE FUTURE OF PUBLIC WATER SERVICE: FROM SERVICE PROVIDER TO ECOSYSTEMIC ENTERPRISE FOR SUSTAINABILITY

Climate change, demographic and economic transformation, technological and behavioural change, all these multifaceted processes and their interrelation will affect both the availability of water resources and the way we use and share them.

Public water utilities will continue to have a fundamental responsibility in finding effective solutions that ensure a sustainable and equitable access to water resources for all. This responsibility entails – amongst other things – an incessant reflection on how the organisation of the water services should evolve to address current and future challenges.

This document aims to outline the profile of the public water service of the future, building on a collection of the long-term strategies of European public utilities members of Aqua Publica Europea. As we know, water is a localised natural resource; at the same time, the public ownership involves a very strong connection with the territory where the utility operates. The combination of these two dimensions explains the significant diversity of approaches and focuses that characterise the strategies reported in this document; a diversity that reflects the wealth of European traditions and cultures. However, despite this variety, a common trend can be identified in the intellectual and practical efforts water operators are making to get fit for the future.

Each in its own way, **public water and sanitation operators are evolving from 'service providers' to 'ecosystemic enterprises for sustainability'.** Becoming eco-systemic enterprises means that, in order to continue fulfilling their core mission – ensuring sustainable access to water for all – water operators are expanding their domain of activities and competences with a sustainability compass. In other words, water and sanitation operators are getting prepared to engage with all the articulations of sustainability – environmental, social, economic, scientific – so as to guarantee that the decisions and solutions that underpin the management of water resources will continue to serve the general interest of current and future generations.

Innovation – at large – is then the proper form that this evolutionary process takes within an utility. However, differently than for private companies, **innovation is not a means to gain competitive advantages for profits. On the contrary, innovation is the condition to co-evolve with the rest of economy and society**, to 'stay tuned' with a world and a nature that are changing, and to continue providing the service efficiently.

As ecosystemic enterprises, public water operators are open to the outside: transparency and engagement with the society are two essential features that substantiate the public mission. Beyond, public operators contribute with other actors and public administration to define the path of local sustainable development by making available their resources and know-how. **Partnership and cooperation are then the two concrete modalities through which public operators engage with other stakeholders and other economic sectors to respond to societal needs.** Their legitimacy to partake in the evolution of society comes from their not-for-profit nature and from their accountability only to elected officials and citizens.

Finally, their strong embedment in local and national contexts does not mean at all an inward-looking approach to water management. **They are fully engaged in the international arena to confront themselves and learn the best practices from private and public entities**. They also strive to contribute to the international debate on water and environmental policies by participating in, amongst others, in Aqua Publica Europea.

SETTING THE SCENE: A FAST CHANGING WORLD

Since its creation in 2009, Aqua Publica Europea and its growing network of members witnessed **many changes that affected water resources management**. As ten years have passed, we **reflect on the main evolutions not only for the water sector, but also for our entire societies, in order to be able to address the questions of the future**.

TACKLING CLIMATE CHANGE AND REALISING THE RIGHT TO WATER AT THE CORE OF THE INTERNATIONAL AND EUROPEAN AGENDA

Climate change has emerged as the single most pressing issue of our time and efforts to address, mitigate and reverse its effects have been constant. It has materialised through a rise of extreme weather conditions, including unprecedented heatwaves and more frequent and intense floods and fires. These events highlight the emergency in taking action and the need to create a more sustainable framework to manage our natural resources, in particular water.

By 2015, political efforts and social mobilisation had led to the adoption of the landmark **Paris Agreement**[1], in the context of the United Nations Framework Convention on Climate Change (UNFCCC), setting the global aim to limit temperature rise to *"well below 2 degrees Celsius above pre-industrial levels"*.

Also in 2015, the United Nations Millennium Goals were replaced by the **Sustainable Development Goals**[2] **(SDGs)**, a set of 17 goals to take action, at a global scale and in all aspects of life, to build a world that is both more sustainable and more equal.

Whilst **water is critical to meet all 17 goals** in a way or another, a specific focus has been put on ***'Clean Water and Sanitation'* (SDG 6)** as an objective in itself, with an **action plan built upon specific targets and indicators to guarantee that everyone has access to water**, a resource essential for life and livelihoods.

This aligns with the recognition, by the **United Nations General Assembly**[3], of **water and sanitation as human right** in 2010, followed by the seizing of the issue by the European civil society, in 2012, with ***Right2Water***[4]**, the first-ever EU Citizens' Initiative to reach the threshold of one million signatures (1.659.543) and to be considered by the European Commission.**

The European Commission took the decision to answer this call for recognition of water as a right at the EU level through the vehicle of a proposed revision of its **Drinking Water Directive**[5] in 2018, taking also the opportunity to propose changes with the objective to **increase trust in tap water** through new quality but also transparency requirements.

Through this process, the European Commission took a first step to **put water in the centre of debate**. Since then, the **momentum has continued to rise with an assessment of almost the entire body of water policy:** from the **Urban Waste Water Treatment Directive[6] (1991)** to the overarching **Water Framework Directive[7] (2000)** and related pieces of legislation, as well as new proposals such as the **Water Reuse Regulation[8] (2018)**.

Whilst in the past ten years the **existing legislation has proven to be an important instrument for the improved management and use of our limited water resources**, it is now key to understand how to apply these instruments in a new context, in order to set the grounds to **build a robust, resilient and sustainable framework**, notably in the face of climate change and increasing water scarcity.

In 2018, the **European Environment Agency's report on the status of European waters[9]** emphasised the progress made so far: we now have information on our waters but still have not reached the *'good status'* imposed by European legislation – **there is more to be done**.

Therefore, **water management has been put under the light of a need for stronger governance in order** to ensure a functioning system where responsibilities are clearly defined and assigned, where rules are fully applied and implemented and where water can be as transparent as it should be.

THE MODEL OF WATER MANAGEMENT MATTERS

Over the last decade, **citizens everywhere have called for their voices to be heard in the debate and increasingly expressed their expectations for more democratic water services** through more accountability, more transparency, better services, increased access to water and sustainability. It is representative of this phenomenon that, in 2014, when the European Commission consulted stakeholders on water and the Drinking Water Directive, later to be tabled for revision, "*88 % of the responses came from citizens*"[10].

As **water provision is a natural monopoly,** and users – citizens or businesses – do not have a choice in the water they use, the way water is managed and the chosen model (public or private) can be the object of intense political confrontation. Following a wave of privatisations in the 1990s, perspectives based on quick investment mobilisation and performance improvement may not have always materialised and, as from the year 2000, the trend has been reverting with a growing number of municipalities or countries deciding to bring back – or confirm – water management in public hands.

Through the years, political mobilisation, grassroots movements and referenda in different countries in Europe (Italy[11], Greece[12], Spain[13], the UK[14], Switzerland[15] amongst others) resulted in **resounding calls in favour of public management**. In 2000, in the water sector, there were 2 cases of 'republicisation'. The same figure was 235 in 2015 and 267 in 2017[16], with the iconic case of Paris', which stemmed from a political choice to break from the old system in 2009.

Following this trend, the same year **Aqua Publica Europea was officially created to gather like-minded public water services from around Europe**. From the initiative of a few water operators from Paris, Milan, Brussels and Geneva, the objective was to work together across Europe and find common solutions to common challenges with a similar set of values outlined in the association's founding charter[17], which is based on the view that **water is a common good that needs to be managed for the general interest by efficient public services**. Since then, the community has continuously grown, with a total of 65 members by 2019, serving over 70 million people in Europe in water and sanitation services.

Looking at the past ten years, we can identify the global trends for water. In 2019, drinking water is cleaner than ever and we are moving towards more sustainability and more accountability. At the same time, the **water sector faces emerging challenges** which will continue to affect water resources as well as their management.

Aqua Publica Europea is taking the opportunity of its 10 year anniversary to not only reflect on the past but, beyond, to consider what is next and outline the public water services of the future.

"The world is changing and even though the services to the population remain more current than ever, we have to change with it" VIVAQUA[18]

THE CONTRIBUTION OF AQUA PUBLICA EUROPEA TO THE DEBATE ON THE FUTURE OF WATER RESOURCES

To understand what the next years will entail for the water sector, Aqua Publica Europea has called upon its members to identify the priorities in the next years. Based on the insights and long-term strategies of Aqua Publica Europea's members – who face these existing and emerging challenges in their daily mission – as well as from external experts, this **publication outlines the profile of the public water service of the future**.

Sustainability is the lens through which we must consider any evolution – this is acknowledged internationally with the Sustainable Development Goals and at EU level with the 2030 Sustainable Europe Agenda [19]. More generally, it is an imperative that should permeate all our activities to ensure that we do not impair the future of the planet and the resources or the wellbeing of the generations to come; it is also what youth across countries is asking with the climate movements.

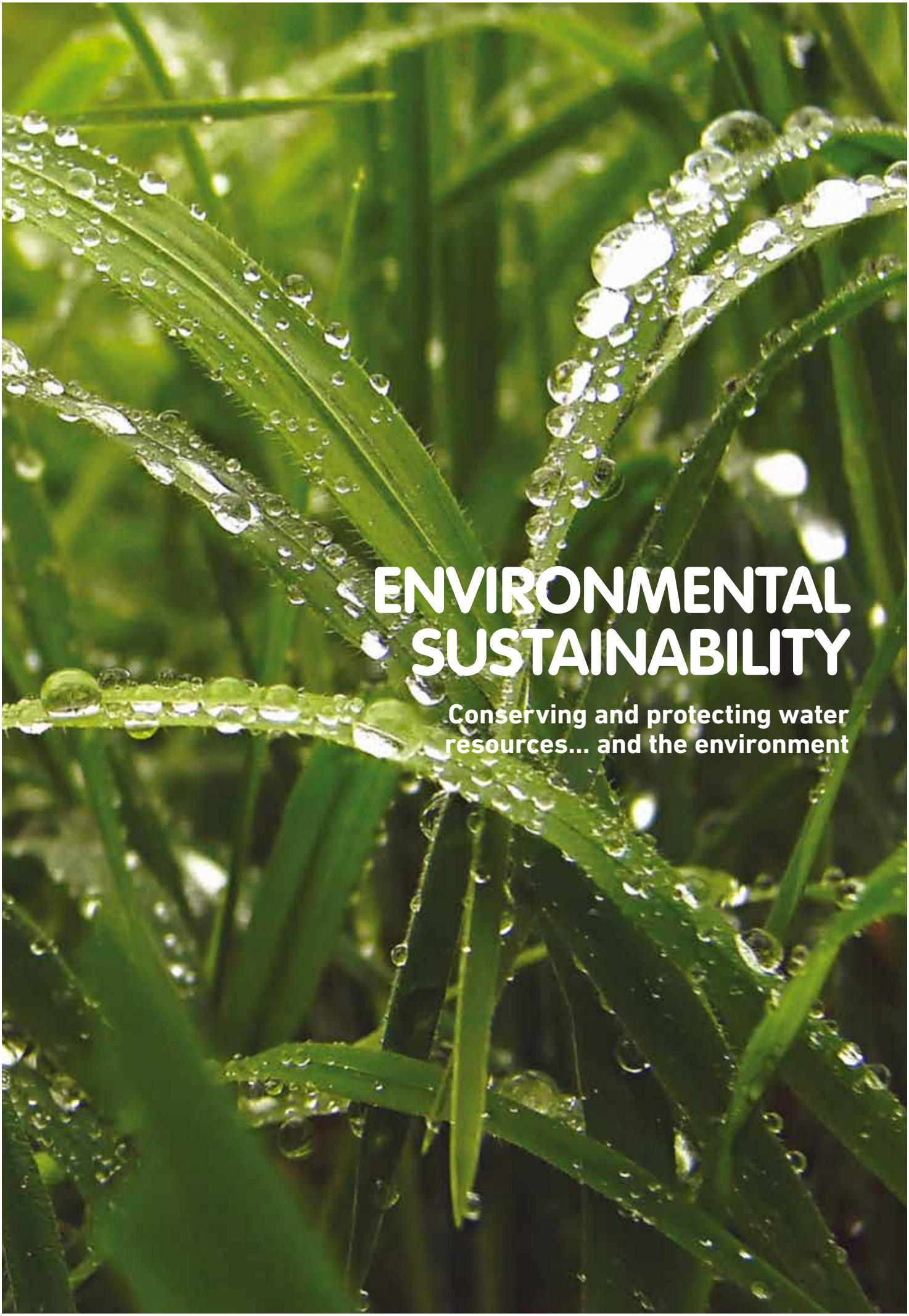
As sustainability does not refer to solely environmental aspects but rather, more generally, "*the quality of being able to continue over a period of time*", according to the Cambridge Dictionary, our societies' ability to prosper relies on a range of aspects. A **sustainable approach to water management encompasses the environmental, economic, social and scientific angles**.

As water is essential to both life and the economy, it affects many stakeholders who may either rely on the quality and availability of water resources for their wellbeing, or impact said quality and quantity through their activities. Therefore, a sustainable standpoint necessarily implies a capacity to adopt a **collective approach, across sectors, territories and communities** to ensure the most efficient and fair management of resources.

Staying ahead of the curve and facing evolutions further requires utilities to be resilient but also to **understand the different emerging trends – from the change to rainfall patterns to demographic transformation – and have the creativity, innovation and commitment to face them, in very long term.**

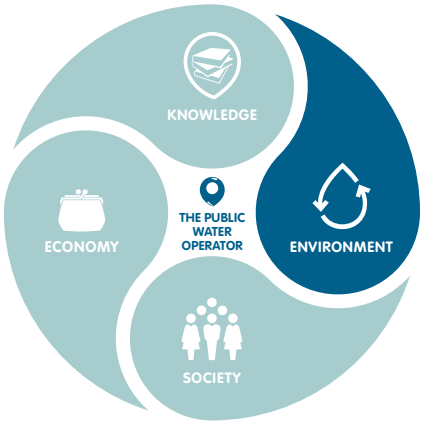
Therefore, the approach chosen to understand the public water sector of the future is **ecosystemic**, in the sense that it reviews **how public utilities are part of a set of ecosystems** that contribute to the **development of their communities** by considering the great challenges of today and tomorrow in relation with a diversity of stakeholders in an open framework of **sharing knowledge, creating strong partnerships and building the future together.**

The following pages feature a wide series of concrete examples taken from Aqua Publica's members strategies and projects to illustrate this evolution of public water utilities into ecosystemic enterprises. The examples are organised under the three components to the sustainability framework – environmental, social and economic – plus knowledge and science, which are necessary to orient any evolution process. However, this organisation of concrete examples respond mainly to a practical need. As we will see, most of the initiatives here reported are actually thought and realised having all the components in mind: ensuring long term sustainability of our resources to ensure access to all, whilst minimising the costs and responding in the most effective ways to users and citizens, thus contributing to global development of our society. In short, an ecosystemic approach.



ENVIRONMENTAL SUSTAINABILITY

Conserving and protecting water resources... and the environment



Managing water is a deeply environmental task. The unique features of water – a common resource that is essential to life yet available in finite quantities – make it a ***heritage*** rather than a commercial good, a definition confirmed in the European Water Framework Directive, the overarching legislation on water:

"Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such."

First, water is necessary to both human life and society's livelihoods: water serves multiple essential uses from individual home needs to the production of the food we eat and the products we use. At the same time, this high-demand good is of **limited availability**: we cannot produce water and find it difficult, in terms of financial costs or energy needs, to move it across distances. In other words, what we have is all we have. As the future availability of water is vulnerable to many external factors, it is paramount to realise the role **our society, as a whole, has to play to preserve this vital resource**.

When we discuss the availability of water, two closely interlinked aspects are considered: the **quantity and the quality of water**, both of which are affected by a set of pressures and, above all, by climate change.

"*Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. **It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions**. The ocean will continue to warm and acidify, and global mean sea level to rise.*" – Fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change (IPCC), 2014[20].

In addition, our **population will change and the profile of households will be different**. The European population in general will grow, albeit slightly. More importantly, people will continue to move to cities, with an **expected urbanisation level in Europe shifting from 75 % in 2020 to 83.7 % in 2050**[21]. With an aging population, we can expect household sizes to be reshaped as well – projections show that the share of people over 65 in the European Union will increase from 19.2 % in 2016 to 29.1 % by 2080[22]. These changes mean the need to adapt water services: more pressure will be put on urban networks, involving more pressure on available local resource and growing need for waste water treatment capacity. On the other hand, due to its the high fixed costs, water service provision to increasingly more isolated rural populations will become relatively more expensive.

Finally, due to a combination of demographic change (ageing), industrial development (new synthetic compounds), and geographical transformation (soil ceiling due to urban sprawl) we can expect that **quantity and type of pollutants ending up in our water bodies will grow**.

With predicted lower availability of water and increasing needs, it is paramount to, on the one hand, **use resources responsibly**, and, on the other and, to **ensure the preservation of high quality water from pollution sources**, so that more water can be used, longer.

In this context, public water operators' plans are based on a **long-term, context-based strategy that relies on the thorough consideration of environmental and socio-economic aspects** in order to ensure the continuity of the service, as a priority, with **the lowest environmental footprint possible**.

Public water operators have already identified the key aspects to focus on for the future in order to mantain the environmental balance.

"If we are to create a sustainable future, business as usual is no longer an option and water management needs to be scrutinised through a climate resilience lens." (UN-Water, 2019)[23]

INTERVIEW

Caroline Whalley

European Environment Agency

1. The 2018 EEA report on The State of Water highlights that the status of water is improving but not sufficiently to meet targets, what are some of the explanations ?

For parts of the Water Framework Directive, such as ecological status of surface waters, it has taken time to put in place the monitoring and assessment of water bodies. The first reporting of River Basin Management Plans (RBMPs) in 2010 showed that there were a lot of unknowns in water body status. The **understanding had improved by the second series of RBMPs,** as set out in the EEA's 2018 report* on *The State of Water* but showed that there had been limited improvement between the two reports. Partly this owes to the limited time available to implement measures – measures would need to have been in place by about 2012 to be assessed for the second RBMPs, since most monitoring was done 2012-2014. This doesn't leave much time for the improvements to have taken effect. But **Member States also had to prioritise actions, according to information and resource availability.** This, coupled with the "one out all out" precautionary principle of the WFD, can make progress at the overall chemical or ecological status level seem rather slow. But looking at individual biological quality elements, or at individual chemical substances, shows that improvements have been made. We considered chemicals in the EEA report *Chemicals in European Waters*** and could see that, excepting atmospheric diffuse pollution (of substances like mercury and PAHs), **there appears to be good news on point sources of priority substances** such as metals and industrial chemicals, for example.

2. More generally, what are the main factors of risk for water resources in the next decade?

The major risk factor has to be climate change, with changing rainfall patterns presenting big challenges to some communities. Demographic change is important in some areas, while the challenges faced by water-intensive industries (including agriculture) located in water-stressed areas are likely to increase significantly.

Much effort still needs to be put in to reduce diffuse pollution of water resources, for example by nitrates, and from Combined Sewage Overflows. Meanwhile, increased understanding of micropollutants and the risks presented by mixtures are likely to present ongoing and increasing concern about the sustainability of water resources.

Reducing unnecessary water losses and improving energy efficiency in water treatment and supply will be needed. **Sludge management, both from waste water treatment and process, needs improved focus to avoid sludge becoming a more significant burden to water managers.**

3. Are we ready to address them? If not, what should change to get better prepared?

The sustainable development goals have brought a welcome, renewed focus on water and waste water. **Coupled with a changing climate, there is heightened focus on ensuring security of supply and social equity.** While access to safe water and sanitation can be assumed by many Europeans, not all citizens have these facilities and ensuring that they do so is challenging at all levels, from ensuring finance is available at national level to the availability of skills at a local level for project delivery.

The water and waste water management sector has traditionally managed its way out of significant challenges. But this comes at a cost, and whether that is to the environment or the consumer is a key point that ought to be discussed more widely, so that society takes more responsibility for the outcome of its actions.

Longer term, **we can see the circular economy offering a more sustainable way of living.** For example, avoiding the use of persistent, bioaccumulating and toxic substances would reduce the contaminant load reaching waste water plants. Clearly that will take a lot of effort by many actors to achieve such a change, though the recent appointments at European level suggest the opportunity:

* https://www.eea.europa.eu/publications/state-of-water
** https://www.eea.europa.eu/publications/chemicals-in-european-waters

- **Mission letter from Commission President-elect Ursula von der Leyen to Executive Vice-President-designate for the European Green Deal Frans Timmermans:**
  You will be responsible for coordinating the Commission's work on our **zero-pollution ambition**. This will require a wide-ranging approach looking at air, water, and noise pollution from transport, agriculture and food production, water quality, hazardous chemicals and other key areas.

- **Mission letter from Commission President-elect Ursula von der Leyen to Commissioner-designate for Environment and Oceans Virginijus Sinkevičius:**
  You will lead on delivering on our **zero-pollution ambition**. This will require a wide-ranging approach looking at air and water quality, hazardous chemicals, emissions, pesticides and endocrine disruptors. ... I want you to lead the work on a new **Circular Economy Action Plan** to ensure sustainable resource use, notably in resource-intensive and high-impact sectors. This should support and feed into the new industrial strategy.

Across Europe, we can already see great examples where water utilities are adapting to the challenges of climate change etc.

4. What will the priorities at EEA in the coming years?

In terms of work planning, we are intending to address a range of particular issues in the next 2-3 years. For example, to **consider water and agriculture in an assessment expected in 2020;** the **management of waste water sludge;** management solutions to some significant water management issues. We also aim to work with existing data on pesticides in water and bring together data on ground-water resources. Right now we are trying **to develop indicators on efficiency of large (>100,000 person-equivalent) waste water treatment works and on waste water re-use,** as part of an effort to highlight sustainable practice in the industry that is being and could be achieved. **Assistance with access to data sources would be welcome!**

The sustainable development goals have brought a welcome, renewed focus on water and waste water. Coupled with a changing climate, there is heightened focus on ensuring security of supply and social equity. While access to safe water and sanitation can be assumed by many Europeans, not all citizens have these facilities and ensuring that they do so is challenging at all levels, from ensuring finance is available at national level to the availability of skills at a local level for project delivery.

PREVENTING POLLUTION, OLD AND NEW

The priority of the public water operator is to fulfil its mission to **supply water of excellent quality that meets the high standards set in legislation**, and to treat it according to strict requirements to ensure that the treated water that is returned to nature continues to be clean and safe and does not put health or the environment in danger. In some cases, it may also be treated in a way that allows reclamation: a second use. Ensuring high quality of the water we drink and return to the environment may involve the use of advanced technologies.

Yet, *"once water is contaminated, it is difficult, costly, and often impossible to remove the pollutants"* [24]. **Therefore, preventing pollution at the source is acknowledged as the most efficient solution to maintain water's natural quality.** Not only is it better for the environment but it also supports the reduction of costs and, therefore, users' water bills. Whilst exact figures vary, it is estimated that **water de-pollution costs hundreds of millions of euros per year in the EU** [25]. Aiming to approaches that protect and preserve the natural characteristics of water is therefore essential if we want to ensure socio-economic sustainability.

The '**Polluter-Pays' principle**, set in legislation, is meant to ensure that the cost of treatment is not transferred to households but, rather to polluting entities and hence incentivise the reduction of pollution. Still, its application remains incomplete. According to a study by the Organisation for Economic Co-operation and Development (OECD): *"the Polluter Pays principle has typically not been successful in the control of diffuse pollution because of the limitations on measurement, abatement measures, poor enforcement and political resistance"* [26].

Despite the outlined hurdles and resistance to the application of the Polluter-Pays principle, and in consideration of the impacts of pollution on water, both immediate and permanent, the **public water operator makes it a priority to find solutions to prevent pollution**, to benefit the entire ecosystem – from nature to households' finances. In practice, at source pollution control and preservation of water quantity can translate into a **wide-ranging series of interventions that require forward-looking planning, innovation and collaboration with all actors**.

All operators are engaged in developing and implementing **Water Safety Plans (WSP)** as a more effective approach to deal with pollution, as it entails reorienting attention and actions to detect, understand and manage the sources of hazards, rather than addressing pollution 'reactively' once hazardous phenomenon has occured. This is in line with the expected requirements of the new EU legislation on drinking water and, within **Aqua Publica, members have launched a comparative exercise to better understand how the WSP methodology is concretely implemented across operators,** from a technical, economic, and organisational point of view.

Aqua Publica Europea's publication Water and Climate: European Public Water Operators' commitment to water resources protection [27] (2015) provides an overview of members' actions for reduced treatment, protection over treatment, protection of human health and the environment.

In Grenoble (France), the nature quality of the groundwater is particularly excellent, therefore it does not to be treated before distribution. This implies strong control of the resource and 24 hours, 7 day high-security surveillance by the local operator Eaux de Grenoble.

CILE, the operator from Liège, Belgium, worked with local farmers in the context of the project Nitrates, drinking water: together let's preserve the future to develop sustained dialogue in view of promoting at source pollution control and develop joint solutions satisfactory to all parties.

A preventive approach to pollution also involves an effort to understand and detect new forms of pollutions – the so-called 'emerging pollutants' –substances that we know are in water but of which we still do not know exactly the potential harmful effects on health, or substances that we suppose are in water but the analytical techniques do not allow yet to detect them precisely (for example because extremely tiny). In this context, the key reference is scientific research and the work of organisations such as the World Health Organisation. Public operators are committed to monitor and absorb the latest advancements on this (*see section IV*) and adapt interventions accordingly. In addition to this, several operators have launched their own research projects to detect or understand the effects of emerging pollutants within their facilities.

UniAcque (Bergamo, Italy) signed a research contract with the Italian National Research Council on "Pollution of surface water: micro-plastics and antibiotic-resistant bacteria in the area of Bergamo". The project will look at different treatment plants, thus improving knowledge on the treatment efficacy of different processes and methods for these emerging pollutants.

CASE STUDY

Working with farmers to encourage organic farming practices

EAU DE PARIS

Eau de Paris has developed an entire strategy on the question of resource protection. To reduce the presence of agriculture-related pollution, including nitrates and pesticides, the public water operator chooses to work with all stakeholders, and in particular with local farmers who are situated close to catchment areas. Eau de Paris encourages the move to organic farming practices through a comprehensive support in place for many years: technical assistance, experimentation, development of new practices, financial support to compensate risk-taking and training. When the first pilot project showed positive results, Eau de Paris decided to continue pursuing this method and today over a hundred farmers have committed to the transition. In addition, working with the entire ecosystem, Eau de Paris is partnering with local authorities and farmers to develop a fully sustainable supply-chain: farmers working with Eau de Paris have supplied 7 tons of organic lentils to Parisian schools.

ALTERNATIVE WATER RESOURCES AND NATURE-BASED SOLUTIONS TO REDUCE PRESSURES ON WATER BODIES

In order to ensure **continued availability of water resources, one effective response may be to prioritise the use of high quality water for drinking purposes, whilst using alternative resources for non-drinking water use.** Public water operators have developed strategies that are based on both the origin of the resource and the use it is meant for.

The direct relation that links publicly-owned operators to the municipalities, to which they belong and respond, further allows to find synergies by using **alternative water resources for municipal uses**: street cleaning, decorative fountains, public toilets, fire hydrants or green spaces irrigation.

In addition, the European Union has also recognised the benefits of the reuse of reclaimed water – waste water that has been treated to high standards – for **agriculture irrigation purposes**, with the proposal of an EU Regulation on Water Reuse[28], which would set requirements for the quality of water to be reused in this framework, thus increasing trust in the products coming from agriculture.

Barcelona Cicle de l'Aigua SA

PLARHAB is a technical plan to use alternative water resources - groundwater, reclaimed water, rainwater, 'grey water', sea water - in cases where drinking water quality is not required.

PARIS

The City of Paris published its 'Plan Pluie' which supports a move towards the collection and reuse of rain water for non-drinking purposes, as well as the related vegetalisation and de-impermeabilisation of urban infrastructure.

HAMBURG WASSER

In collaboration with several public stakeholders (universities, urbanism, transport, housing), HAMBURG WASSER has established a rainwater plan towards 2030 (RISA), to address the question of water management in a context of urban development.

régie des eaux

A part of the activity of the operator in Montpellier (France) is focused on 'raw water' for individual, collective or agricultural uses, which has saved 300.000 m^3 of drinking water in 2017.

ÁGUAS DE GAIA

In 5 schools in the municipality of Vila Nova de Gaia (Portugal), Águas de Gaia installed a Rainwater Utilisation System, to supply the toilets in their sanitary facilities from reservoirs associated with collectors and fall pipes that collect rainwater from the roofs of school buildings. The water may also be used to wash the courtyards and surrounding areas.

UniAcque

Uniacque (Bergamo, Italy) commissioned a research project to the University of Pavia on 'Water, Caves and Land management: research on the protection and conservation of karstic aquifers'. The objective of the project is to detect, analyse and protect very deep groundwater sources, as alternative resource in case of drought.

Beyond, as climate change will affect the availability of water, both in regions which already have experience with water scarcity and in new regions, water operators are also assessing the opportunities to store water surpluses to use in dry seasons, or use nature-based solutions for aquifer recharge.

Belgian De Watergroep (Flanders) is carrying out , through its Aquifer Storage and Recovery project, an investigation at its water production plant to assess possibilities to store surplus winter water in the subsurface and then harvest stored water in the event of a prolonged drought.

SIG (Geneva, Switzerland) has managed a project – in collaboration with Swiss and French authorities – for a recharge of the aquifer of the southern canton of Geneva and the municipalities north of Salève. In order to address a problem of over-exploitation of the aquifer, a recharge station has been built in order to take water from the Arve river. The water is mechanicallyy treated (clarification), and then injected in the soil through inverted drains. A filtration system is used only to avoid clogging the gap of the sub-soil, but the qualitative side is assured through the self-purifying capacity of the ground.

NETWORK IMPROVEMENT AND OPTIMISATION FOR ENERGY EFFICIENCY AND LEAK MINIMISATION

Protection of water resources and the quantity of available water resources also means that the **assets and networks** that were built decades ago, sometimes over a century ago, and including those in historic European city centres and in remote locations, are **strengthened and optimised**. Integrating different data sources coming from users and water networks' behaviour can lead to significant improvements in energy efficiency and to more targeted interventions, thus minimising costs and disruptions.

SMAT (Turin, Italy) launched the 'Octopus Project' that allows to integrate data from different sources based on most advanced 4.0 supervisory control and data acquisition (SCADA) software to increase safety and efficiency of management processes. Octopus will notably contribute to analysis, forecast and detection of network anomalies; and analysis of distribution networks' water balance or energy consumption at plant scale. At full capacity, Octopus will act as a true tailor-made intelligent instrument, built to be interfaced with all company databases and to grow according to new emerging needs.

Seeking new ways to detect anomalies allows to find leaks and ensure shorten response times to reduce the negative effects. To be able to do that, several options are put in place: from relying on **technology**, such as smart metering, to calling upon a trained workforce that can respond to issues.

In 2017, seven public water operators members of Aqua Publica Europea came together as they identified common needs, but no existing solution to fill them, in the field of smart metering. This is how the EU funded SMART-MET project was born (Horizon 2020) to drive the development of a new, fully adapted solution through a pre-commercial procurement process.

Repairing and replacing aging infrastructure, when possible, is a crucial step. To minimise investment needs. Therefore, the public water operator continues to seek innovative options to fix the networks, including with new materials such as composites.

Anticipating the new EU Drinking water Directive, expected to be adopted by 2020, water operators called upon the walloon governement to adopt a law forcing new buildings to be certified for water. This represents the third part of risk-based approach as mentioned in the proposal for a recast of the Drinking water Directive set up by the European Commission, namely the domestic risk assessment. The particularity of the walloon approach is that it will focus not only on drinking water supply but also on sanitation. The final aim is then to protect the quality of water intended to human consumption (avoiding contamination inside buildings) as well as improving quality of surface water bodies by ensuring that buildings are properly planned and managed. This will also contribute to a lower risk of occurrence of indoor leakages participating of environmental sustainability. This is of crucial importance also regarding affordability as most households having difficulties in paying their water bill tend to over-consume water.

Budapest Waterworks' (Hungary) launched its Water 4.0 strategy which relies on several components in relation with automation, applying software robots, digitalised processes and series of new technologies. The MIRTUSZ system, amongst other specificities, creates a chain of actions in case of anomalies of disruptions: from information from the customer call centre transmitted to the operation centre dispatcher which triggers the inspection team. Inspectors in the city receive real-time information and arrive on-site and are equipped with utility maps to analyse the location, model and search the closing valves.

In many places the urban context makes it difficult to access and handle the network **and innovative technology**, such as trenchless technologies, are sought to address the complexity and minimise the need for excavation and therefore environmental and social impact.

MM (Milan, Italy), which operates in a highly urbanised environment applies widespread use of 'No Dig', or trenchless technologies, which allow to renew the city's mid- to large-scale water supply and sewer systems without breaking the ground , thus minimising costs and inconveniences to people and businesses.

Beyond, working with other public services, such as the transport sector, and the municipality, creates the possibility to use **opportunities of public works and construction to also update the water network whilst reducing both costs and disturbances to the neighbourhood**.

Eau de Paris – In Paris, the public works to extend the tramway network has given the water operator the opportunity to access subterranean piping to update the network.[29]

CONTRIBUTION TO A SUSTAINABLE ENVIRONMENTAL ECOSYSTEM THROUGH BIODIVERSITY PRESERVATION AND GREEN PROCUREMENT

As a public service, the public water operator makes it a priority to protect and improve its environment, beyond water, which requires an **all-encompassing, environmentally-conscious long-term strategy**.

Globally, biodiversity is threatened, and species and habitats need to be preserved. Recent scientific reports[30] show that the **biodiversity that we depend on is degrading faster than ever** and actions need to be taken to protect natural heritage. At the same, in its position as an environmental actor, the water sector is closely intertwined with nature. Therefore, the public water operator takes into consideration biodiversity in its planning and contributes to its protection, including when protected areas are established for catchments. **Land-use decisions** and **investments and development in 'green infrastructure' and 'nature-based solutions'** are opportunities to bring together water and nature, with benefits for all sides.

PARIS

Bathing in the Seine and Marne rivers will soon be a dream come true for all the bathers of the Parisian Metropolis with the first of a total of 24 planned bathing sites opening as of 2022 to the public, resulting from an ambitious program to improve water quality by cutting down the volume of polluted rainwater discharged in the seine from 20 million m^3 to under 2 million m^3, and with the contribution of the city's "Rain Zoning" plan. The project, which not only contributes to the restoration of biodiversity but also to adaptation to climate change by providing bathing and cooling areas, involves multiple metropolitan and state stakeholders and benefits from the perspective of organising some of the 2024 Olympic games swimming trials in the Seine river.

EMASESA metropolitana

To conserve biodiversity, EMASESA (Seville, Spain) develops deep understanding of rivers and ecological flows in catchment areas to make water supply compatible with conservation. The operator further takes actions to improve ecosystems including removal of obstacles to river streams, reforestation and measures to minimise the impact of its works on flora and fauna. In the river Rivera de Huelva, 630 m^3 of concrete were removed from the riverbed, 1.200m^3 of waste illegally disposed of in the environment were removed and informative posters and native trees and shrubs were planted.

réseau31 une autre idée de l'eau

RESEAU31 (Haute Garonne, France), has taken over the Aussonnelle river restoration project with the objective to improve the ecological quality of this particularly polluted affluent to the Garonne as well as to develop a green corridor. Two main actions were completed: building a new, modern wastewater treatment plant and replenishing the river to ensure a mimimum flow to favour the development of ecosystems.

An Agricultural Park was created to mitigate and compensate for the environmental effects of MM's (Milan, Italy) largest treatment plant: 50 % of its 100 hectares are allocated for agricultural use, and 50 % are planted with various species of trees. The Park recreates a natural landscape in the Vettabbia valley and represents an ecological laboratory of diverse habitats, with a vast agricultural and forest ecosystem that also includes wetlands, watered by the treatment plant, that functions as an ecosystem filter.

Further, as a public service and therefore a public procurer, the opportunity for public water operator to be a true ecologically responsible actor lies also in '***green public procurement***' (GPP), which allows to direct public money to buying products and services that have a reduced environmental footprint and contribute to more sustainability. According to the European Commission, "*Green Public Procurement (GPP) is an important tool to achieve environmental policy goals relating to climate change, resource use and sustainable consumption and production – especially given the importance of public sector spending on goods and services in Europe*" [31].

SIAAP, the waste water treatment operator for the Paris region, has adopted a 'green public procurement' policy for its procurement based on a 'responsible procurement charter', and the introduction of strict environmental requirements for its suppliers

A REDUCED ENERGY FOOTPRINT

The **link between water and energy** is no longer to be proven: water is a high consumer of energy and, at the same time, can serve to produce energy.

In light of the Paris Agreement as well as EU targets towards 2030 to cut emissions by 40 % below 1990 levels and reach at least 32 % share for renewable energy [32], it is paramount to **find solutions to reduce the energy footprint and contribute to climate goals**.

In this context, public water operators have developed strategies to **reduce their energy consumption**, through new or adapted energy saving practices and **commit to consumption of green energy.**

SWDE (Wallonia, Belgium) developed a strategy to reduce energy costs by 15 % and its carbon footprint by 20 % by 2022, which was scaled up with support from the Wallonia region for the implementation of mechanisms to reduce energy use during peak hours and investments in solar energy.

In addition, some water operators already engage in energy generation, including by using their facilities to install thousands of square meters of solar panels on their roofs.

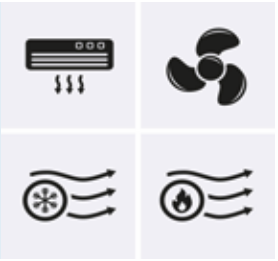
Scottish Water (UK) achieved a key milestone: the amount of renewable energy it generates and facilitates is more than double its electricity consumption.

Brianzacque (Lombardy, Italy) has installed solar panels in his headquarters to ensure the energy independence of its offices.

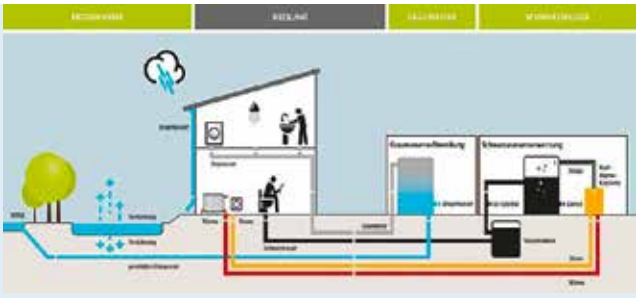
De Watergroep (Flanders, Belgium) is working on a project involving 7.5 hectares of floating solar panels. A part of the energy generated will be offered to a waste water treatment plant and another part will be used in a gravel extraction plant.

The **potential to recover energy in the water management process is significant**, and several initiatives are already set in place. In particular, there is opportunity for thermal energy recovery from waste water to heat public buildings or neighbourhoods.

Brussels operator VIVAQUA (Brussels, Belgium) has developed a technology that allows to recover heat from sewers and use it to generate energy to heat and cool public buildings. For a more integrated approach, the technology has been installed during the retrofitting of the network.



InBW (Wallonia, Belgium) produces heat and electricity from sludge deriving from waste water treatment and organic waste collected from local agri-food industries. The energy produced feeds the waste water treatment plant itself.



HAMBURG WASSER (Germany) developed a project to recover energy from wastewater in a residential district, relying on separate collection of 'black water' (toilet) from 'grey water' (showers, washing) and from rain water. The black water is then conducted through a vacuum network to a fermenter where it ferments to produce biogas. A combined heat and power plant turns the biogas into electricity.

CASE STUDY

Bioresources: an emerging opportunity

In the European Union, recent data suggests that the treatment of waste water produces over 8.5 million tons of dry solid matter of sludge every year. The underlying opportunities are multiple: sludge contains essential nutrients such as phosphorus, it can be used as a fertiliser or to make construction materials, it can produce energy. Sludge is an excellent biological resource that has the potential to contribute greatly to the transition towards a circular society. Still, without coherent legal frameworks and enabling conditions, waste water operators may be prevented from handling sludge in a circular manner.

In June 2019, Aqua Publica Europea's members gathered to discuss the emerging question of sludge management, a concern in different locations. The discussion with waste water treatment experts concluded that there is a collective responsibility in ensuring a sustainable future and operators face similar issues when dealing with sludge: whilst innovation and technology are key instruments in this process, a coherent set of enabling conditions – on regulation, market and public acceptance – is necessary to allow to take the full advantage of sludge and its benefits.

Public water operators are dedicated to the move towards a more sustainable management of sludge. This commitment does not stem from profit-seeking objectives but the awareness of their public responsibility and the need to find sustainable and economically efficient solutions to a collective problem. Facing the need to work jointly to tackle this emerging issue, the members of Aqua Publica Europea launched a new Working Group dedicated to sludge management, coordinated by Italian operator MM (Milan).

Aqua Publica Europea's Report of the Thematic Workshop Towards a sustainable approach to sludge management: legal frameworks and technological solutions (2019).

BAS BIOSOLIDS ASSURANCE SCHEME

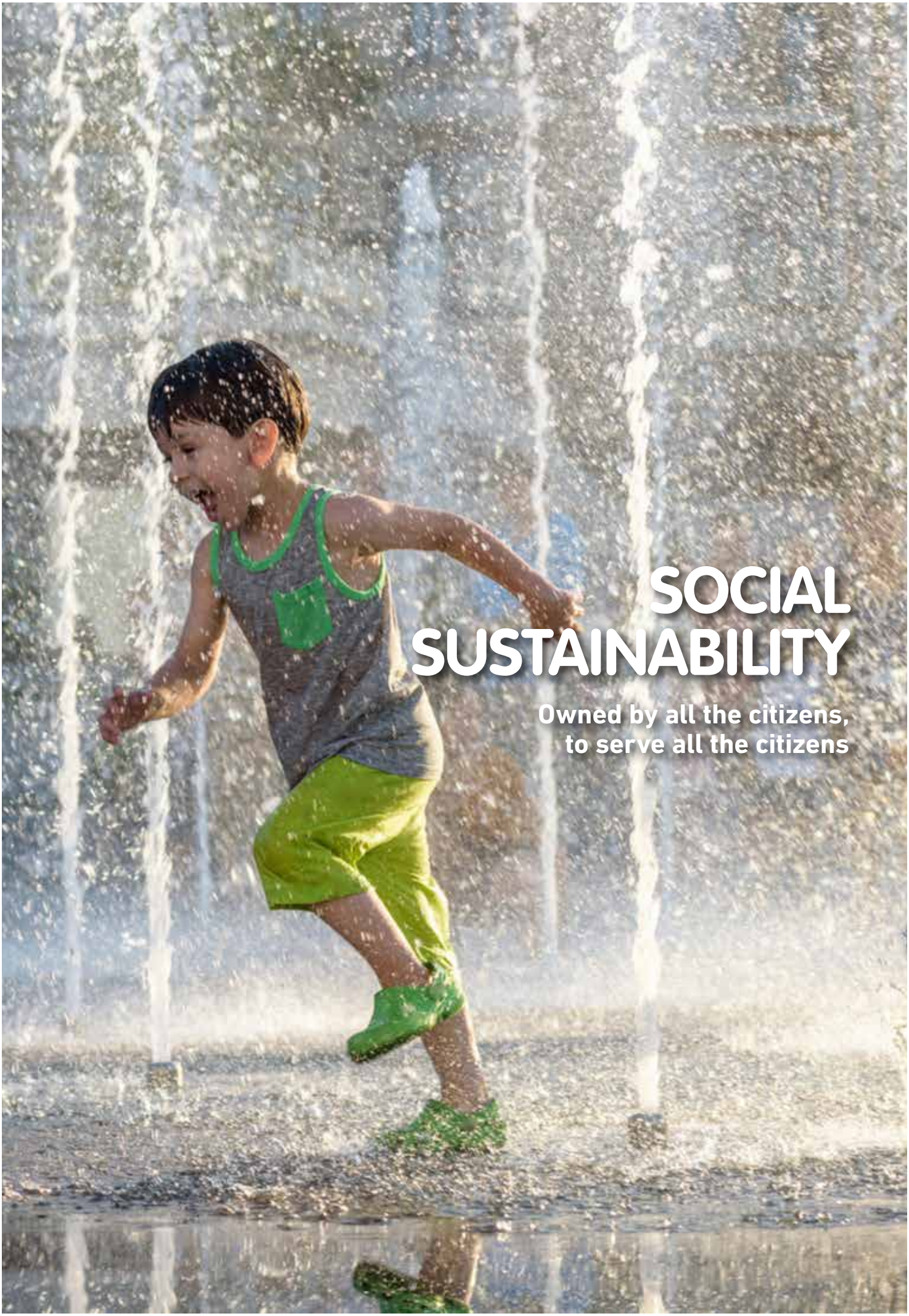
Scottish Water

In Scotland, bioresources are largely reused in agriculture, as the result of a long term engagement of Scottish Water and institutions to develop assurance schemes together with the farming sector, which certify the conformity of the sludge with agreed quality standards going beyond regulatory obligations.

réseau31

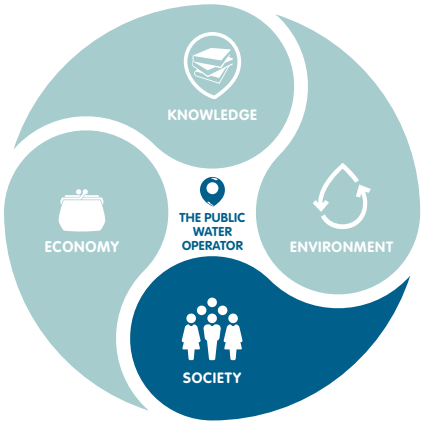
PROMEDIO

RESEAU31 (Haute Garonne, France) and Promedio (Badajoz, Spain) are both amongst partners of the Interreg project CIRCRURAL that aims to foster circular economy in rural areas with an innovative solution that is adapted to the size and location of rural treatment plants, that is cost-effective and can be installed in existing infrastructure.



SOCIAL SUSTAINABILITY

**Owned by all the citizens,
to serve all the citizens**



As publicly-owned organisations, public water operators are rooted into their territory: on the one hand they significantly depend on their communities for their organisation and human resources; on the other hand, public operators are actors in the social life and contribute to local development by sharing all the added value they generate. Deeply connected to the social fabric, water operators will continue to develop strong interrelations to respond to the needs of tomorrow.

First and foremost, public operators' members of Aqua Publica are committed to ensuring that all citizens have access to water. This commitment is inscribed in Aqua Publica's founding charter adopted in 2009, and intends then to respond with concrete actions to international agenda objectives, starting from the UN Sustainable Development Goals and in particular on SDG 6 on the right to clean water and sanitation. But water, as an essential services, is also included in the **European Pillar of Social Rights**[33]: "*Everyone has the right to access essential services of good quality, including water, sanitation, energy, transport, financial services and digital communications. Support for access to such services shall be available for those in need*". Finally, new obligations to ensure access to water for all are also part of the proposal for a new Drinking Water Directive presented by the European Commission in 2018 and still under negotiation with the Council of the EU and the European Parliament whilst we write.

Therefore, **efforts to meet this right and ensure access to both safe and clean drinking water and to sanitation to all will continue to be a primary focus in the years to come**.

Further, in an arena where **expectations for public services are growing**, the public water operator, whose **shareholders are all citizens and which is steered by elected officials**, sees it as critical, in fulfilling its mission in the general interest, to adopt a mind-set that is **both accountable and user-oriented**. Populations and businesses need excellent services – regularly supplied, high quality water – but they are increasingly demanding to be integrated in decision-making processes when it comes to their water.

Resulting from a multi-stakeholder consultation and dialogue process, the **Organisation for Economic Co-operation and Development (OECD) outlined, in 2015, a set of 12 key Principles for Water Governance**[34] to support authorities and utilities in implementing good governance in order to be able to address challenges with strong policies and efficient water management. Amongst others, the importance of 'Trust & Engagement' for good governance is underlined.

Citizens' expectations regarding involvement, accountability and responsiveness of water services will be further strengthened by **the digital revolution** which continues to bring new opportunities, in particular for **communication means and data management**, but also its own set of challenges, including how to effectively adapt to the changes and technology-related new requirements. User-service relation will have thus to evolve rapidly to seize the opportunities offered by new communication technologies, taking care, at the same time, of those parts of the population that have limited access to new technologies, for different reasons (education, age, etc.).

The role of the public water operator in the community is also related to **employment**: both through its own internal workforce and its supply chain. In 2016, the chosen theme by the United Nations for World Water Day was a focus on 'Water & Jobs' as "*in essence, **78 % of jobs constituting the global workforce are dependent on water***[35]".

Various internal estimates have evaluated that a **large portion of water professionals is reaching retirement age**, which means that human resources will be a primary focus in the years to come. Not only will it be crucial to **attract new professionals to the water sectors** – through innovative approaches – it is also paramount, to develop a framework where new news skills can be developed and training is sufficient, in order to build resiliency. Therefore, **attracting and retaining qualified personnel will continue to be a priority**.

Further, the **direct interaction with the community** means responsibilities to be fulfilled as well as opportunities to **raise awareness on water challenges** which affect everyone. The result is a system that can respond to actual needs and adapt to specific, contextual challenges in the long-term.


INTERVIEW

Aziza Akhmouch and Oriana Romano

Organisation for Economic Cooperation and Development

1. Why does governance matter to achieve a sustainable management of water resources?

Sustainability is a multi-faced concept, which includes environmental, economic and social dimensions. The water sector holds intrinsic characteristics that make it highly sensitive to and dependent on multi-level governance. **Water connects across sectors, places and people, as well as geographic and temporal scales.** In most cases, hydrological boundaries and administrative perimeters do not coincide. Freshwater management (surface and groundwater) is both a global and local concern, and involves a plethora of public, private and non-profit stakeholders in the decision-making, policy and project cycles. Water is a highly capital-intensive and monopolistic sector, with important market failures where co-ordination is essential. And, water policy is inherently complex and strongly linked to domains that are critical for development, including health, environment, agriculture, energy, spatial planning, regional development and poverty alleviation

Therefore, **managing current and future water challenges implies much more than technical solutions;** it requires **robust public policies, targeting measurable objectives in pre-determined time-schedules at the appropriate scale,** relying on a clear assignment of duties across responsible authorities and subject to regular monitoring and evaluation. Coping with future water challenges raises not only the question of "what to do?" but also "who does what?", "why?", "at which level of government?" and "how?". Water governance can greatly contribute to the design and implementation of such policies, in a shared responsibility across levels of government, civil society, business and the broader range of stakeholders who have an important role to play alongside policy-makers to reap the economic, social and environmental benefits of good water governance.

The governance landscape for freshwater management has changed in the last 25 years. Information flows more easily and potentially sheds greater light on deficiencies, failures and poor practices. Decentralisation resulted in opportunities to customise policies to local realities, but also raised capacity and co-ordination challenges in the delivery of public services. There is now an enhanced recognition that **bottom-up and inclusive decision-making is key to effective water policies,** and a number of legal frameworks have triggered major evolutions in water policy at national or international levels. But in many places "implementation" is lagging behind, which is why the OECD has long been arguing that **water crises are often also governance crises** in the sense that they relate much more to managing complexity and trade-offs inherent to water policies than designing technical or infrastructural solutions.

2. How can your current work at the OECD help public authorities and stakeholders to improve the governance of water resources?

OECD evidence shows that there is not a one-size-fits-all solution to water challenges worldwide, but rather a large diversity of situations within and across countries. Governance responses should therefore be adapted to territorial specificities, and recognising that **governance is highly context-dependent and important to fit water policies to places.** This is the reason why the OECD Principles on Water Governance were designed in 2015 to provide governments and stakeholders with the 12 must-do for effective, efficient, and inclusive water policies.

OECD Principles on Water Governance

The Principles aim to enhance water governance systems that help manage "too much", "too little" and "too polluted" water in a sustainable, integrated and inclusive way, at an acceptable cost, and in a reasonable timeframe. They consider that **governance is good if it can help solve key water challenges, using a combination of bottom-up and top-down processes while fostering constructive state-society relations.** It is bad if it generates undue

transaction costs and does not respond to place-based needs. The Principles consider that water governance systems (more or less formal, complex, and costly) should be designed according to the challenges they are required to address. This problem-solving approach means that "forms" of water governance should follow "functions" of water governance. Structuring, institutionalising, and/or formalising institutions should not detract from the ultimate objective of delivering sufficient water of good quality, while maintaining or improving the ecological integrity of water bodies.

The Principles were developed and discussed through a bottom-up and **multi-stakeholder process** within the WGI, under the umbrella and guidance of the OECD Regional Development Policy Committee. Since their adoption, they have been **endorsed by 170+ stakeholders, showing a strong commitment towards better water governance.** A Survey conducted in 2018 on the use and dissemination of the Principles showed that the 80 % of respondents, from 30 countries, have used the Principles as guidance to identify water governance practices, tool for self-assessment of how water governance systems are performing, and/or as a vehicle for dialogue across stakeholders at local, basin or national level. At the OECD, we very much believe that governance is not only about governments and that stakeholders have a critical role to play for sustainable futures. The Principles provide a "common language" that can facilitate stakeholder engagement, analysis, dialogue, consensus or assessment about whether water policies are fit for the future, and/or which actions need to be taken, in a shared responsibility, to that effect. For the past decade, we have been facilitating such dialogues, assessing cities, basins or countries' performance, providing data, evidence or recommendations that can drive better water policies for better people's lives.

Source: www.oecd.org/governance/oecd-princples-on-water-governance.htm

3. Stakeholders engagement is identified as one of the essential conditions to achieve good governance. Which are the specific responsibilities of water operators in promoting multi-stakeholders dialogue?

Indeed, **stakeholder engagement is key for informed and outcome-oriented contributions to water policy design and implementation**. This is why international instruments, both hard and soft, have proliferated: they range from the 1992 Rio Declaration on Environment and Development, to the 1998 United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the "Aarhus Convention"), to the Article 14 of the Water Framework Directive, which requires member countries to encourage the active involvement of interested parties in the implementation of the Directive.

Water operators, such as service providers, are key actors in the water management system. There is growing recognition that **services work better when designed and delivered in consultation with citizens,** and that **listening to stakeholders' insights can foster innovation in service delivery practices and better risk management.** As such, a customer-focused approach can drive better quality, faster delivery, greater flexibility in water service provision, while building and enhancing trust. The OECD (2016) on Water Governance in Cities reflected on the role of service providers in 48 cities from OECD and non-OECD countries and detected a wide range of management models for drinking water and sanitation services across cities, which are often the reflection of political choice and/or institutional features. Regardless of the management models, what matters the most is that citizens be protected against water risks, and have safe, and clean access to water services, in line with international commitments and national policy goals and strategies. As an international organisation, the OECD provides standards and guidelines based on international experiences to enhance, amongst others, stakeholder engagement, transparency, integrity and accountability (from the 2009 Checklist for Private Sector Participation in water-related infrastructure to the 2015 OECD Principles on Water Governance). The OECD is also investigating on the evolving role of water operators in cities from provider to promoter of more integrated initiatives interconnecting water, with waste, energy, land use within the circular economy approach. Nowadays **water management in cities does not only mean providing a service, but keeping resources in use and improving natural capital, as water is not only a service, but a carrier of nutrients, chemicals and minerals, and also a source of energy.** Once again, stakeholder engagement is key for this shift to happen.

4. Do you see any trend in the evolution of concrete governance models?

There is **no unique model for managing water but a range of options reflecting a diversity of situations within and across countries catchment based institutions or not.**

This organizational diversity is captured by the OECD Principles on Water Governance, which include a principle that calls for "managing water at the appropriate scale(s) within integrated basin governance systems to reflect local conditions, and foster co-ordination between the different scales". To that effect, **water management practices and tools should: respond to long-term environmental, economic and social objectives with a view to making the best use of water resources,** through risk prevention and integrated water resources management; encourage a sound hydrological cycle management from capture and distribution of freshwater to the release of wastewater and return flows; promote adaptive and mitigation strategies, action programs and measures based on clear and coherent mandates, through effective basin management plans that are consistent with national policies and local conditions; promote multi-level co-operation among users, stakeholders and levels of government for the management of water resources; and, enhance riparian co-operation on the use of transboundary freshwater resources.

When it comes to the institutional framework for water management at basin level, a number of dimensions should be taken into account, such as: **structure** (e.g. existence of a basin committee and its roles and responsibilities); **participation** (e.g. degree of representativeness of people according to the nomination mechanisms- nomination, election, and degree of quantitative and qualitative participation of members of the committee); **legal framework** (e.g. legislative framework concerning the mandate and the structure of the river basin committee); **planning**; **co-ordination mechanisms** (e.g. with different levels of government and with stakeholders) and **information systems** (e.g. data, information available and shared). However, a throughout evaluation of the impacts of river basin related structures is still missing. While it is certainly a challenging task, there are no tangible evidences of the impacts of catchment based institutions on enhanced water security, effective stakeholder engagement, or better spending. Further investigations could then help to shed light on the link between governance structure and outcomes.

The OECD has long been arguing that water crises are often also governance crises in the sense that they relate much more to managing complexity and trade-offs inherent to water policies than designing technical or infrastructural solutions

COMMITMENT TO ACCESS TO WATER – FROM THE LOCAL TO THE GLOBAL LEVEL

Increased access to water is a key priority of the public water operator. Realising the Sustainable Development Goals 6 – clean water and sanitation, means dedicating efforts to seek solutions for better physical and financial access to water. As a fundamental human right, access to water is, however, not yet fully realised, including in Europe.

In their operations, public water operators maintain SDG 6 as their compass: from the continuous **deployment of drinking water fountains in urban areas** to the distribution of **reusable water bottles to marginalised populations.** As a member of the community, the water operator supplies water, for free, in local or national manifestations, including through partnerships with music or sporting events. With the increased reoccurrence and intensity of heatwaves, **such actions are crucial for public health**.

The members of Aqua Publica Europea have all subscribed to the association's Founding Charter, whose first article focuses on Water as a Common Good and highlights that "*access to water constitutes a fundamental, inalienable, and universal human right, and has a direct effect on the security of our collective existence. The availability of sustainable water supplies to serve domestic, industrial and agricultural needs, at the same time preserving the natural balance, must be guaranteed*".

eau de Paris
L'eau. Un service public

In the summer of 2019, Eau de Paris (France) distributed about 50.000 reusable water bottles, including 5.000 to homeless populations.

VIVAQUA

Concerned about social inequality, VIVAQUA (Brussels, Belgium) has launched, in September 2019, an initiative to cut by half the water bill for non-profit associations that provide water services (laundry, showers etc.) to homeless people.

EMASESA
metropolitana

EMASESA (Seville, Spain) has put a focus on supporting vulnerable households through a range of initiatives to tackle poverty and protect the human right to water: 28 % of users benefit from reduced tariffs; social measures are implemented in coordination with social services, more flexible billings and payments, in particular in cases of involuntary leaks.

Medina Sidonia (Spain), a rural town of 11.000 inhabitants was a pioneer in launching in 2014, during the most acute phase of the economic crisis, the 'Minimum Vital Supply' of water. Today, between 200 and 250 families in situation of vulnerability benefit from it and receive a free supply of 100 litres per person per day.

RESEAU31 (Haute Garonne, France) decided to address the problem of access to water in remote and scarcely populated mountain areas through the installation of water fountains

Águas de Gaia (Portugal) developed a campaign specifically targeted at tourists, to emphasise that tap water is safe to drink, a fact not always known by foreigners.

The regional waterworks for the Montenegrin coast has been a key actor in the development of tourism on the Adriatic coast by securing clean drinking water for citizens and foreigners alike.

The Italian Acqua Eco Sport initiative by the public water companies of the Lombardy Water Alliance, together with the regional administration and the national ministry for the environment, awards the sports societies that replace bottled water at their events with tap water.

CASE STUDY

AEOPAS and Spanish water operators' 'Pro Grifo' Campaign

PRO GRIFO

In Spain, 99 % of water is adapted to human consumption; nonetheless the consumption of bottled water is very high. The Spanish association of public water operators (AEOPAS) thus decided to launch the ProGrifo campaign (literally: pro tap) to raise awareness on the quality and benefits of tap water and foster its consumption.

Several public Spanish water operators, including from important cities like Cordoba, Seville, and Cadiz, have joined the movement and implemented, locally, the range of activities towards their populations: taste tests or blind tests to compare tap and bottled water; distribution of reusable water bottles and carafes designed by the population participating in local contests; education in schools, and water supply at sporting events; as well as the sale of carafes to hospitality establishments to promote the offer of tap water as a beverage alternative. The campaign manifesto is available online on the page: *www.progrifo.org*

Public activities in addition allow to answer all questions and meet the users, to build lasting trust. Increased information and trust in tap water not only advances the human right to water, but, with the direct involvement of citizens, it also empowers users to become actors of change by reducing their consumption of single-use plastic and reinforces the perspective that water is a public good that indeed belongs to the community as a whole.

In honour of Eau de Genève's 10th anniversary, Swiss artist ZEP designed the operator's new jug in the context of the 'Operation Carafe', which has both environmental and humanitarian objectives: profits are donated to a project for better access to water for people and schools in Kenya, in partnership with Geneva non-profit H2O Energies. A behind-the-scene video is available: http://bit.ly/zep-grandjd

Internationally, public water operators continue to engage in '*Water Operator Partnerships*' (WOPs): not-for-profit and solidarity-based peer-to-peer cooperation between water operators in the European Union and their counterparts in developing countries to support the realisation of the global right to water. Such partnerships are mutually beneficial and allow to learn from each other. On the one hand, European water operators volunteer their know-how and experience to support capacity building through a variety of projects. On the other hand, findings have shown that such partnerships are beneficial for the European operator as well, as it motivates the workforce and gives an international dimension to a particularly localised sector and allows to learn about a diversity of water challenges.

INTERVIEW

Julie Perkins

GWOPA (Global Water Operators Partnership Alliance)

1. On the international level, what are the benefits of not-for-profit, decentralised cooperation and what is the role of water operators in the realisation of Sustainable Development Goal 6 'clean water and sanitation'?

One of the insights of the Agenda 2030 is **that getting the planet on a livable trajectory requires a collective approach that engages everyone with something to offer.** Cities and towns are where most sustainability challenges get 'real' and we are seeing municipalities and their service providers taking a leading role, often charging ahead of their national governments to innovate solutions for sustainability. A growing number of them are taking this leadership role a step further and getting active in international decentralised cooperation activities like Water Operators Partnerships (WOPs) in order to help their peers in other parts of the world.

WOPs connect a need with an opportunity: on the one hand, many local public water and sanitation operators around the world are struggling to provide quality services sustainably to their populations; and on the other, strong water and sanitation operators stand ready with both skill and the will to help on a not-for-profit basis.

In WOPs, **competent utilities mentor their peer utilities over the course of months and years to learn, plan, structure, and progressively make improvements that will stick.** Like water, those who manage water are essential local resources. WOPs put great emphasis on valuing and strengthening these local utility professionals and workers to do their jobs well over the long run. **Capacity to plan ahead and be resilient is becoming indispensable as local water utilities and their watersheds face growing stresses, from unplanned urbanisation to unprecedented climate change.**

The main potential for WOPs lies in their effectiveness in supporting and sustaining change, and their scalability. Since 2006, when Kofi Annan asked UN-Habitat to lead a global WOP movement, there have been over 300 of these partnerships – most of them between peer utilities in the global south - helping operators improve. Where there are longer durations and good partnership practice, effects range from positive to transformative. Many WOPs generate a ripple effect, whereby operators they help go on to support their neighbouring peers, effectively spreading capacity throughout the region. **Thanks to their non-profit nature, they're also good value for money.** Despite the increased use of these partnerships, the potential for the practice - given the many thousands of public utilities on the planet - remains enormous.

The solidarity nature of these partnerships is essential to them working well. Not-for-profit, demand-led, peer-supported, capacity-focused and sustainability-oriented, these partnerships between peer experts in different countries can exhibit the best of development cooperation, by making the most of local operators' knowledge, resources and motivations to drive their own improvement processes. These key features, which are enshrined in GWOPA's code-of-conduct, are not mere niceties, but instrumental aspects of well-implemented WOPs.

2. What are some key trends for WOPs in the next years? What needs to be done to increase quality and number WOPs? What is the responsibility of international institutions and what is the responsibility of water operators?

Taking WOPs to the next level means inspiring more of them, but also ensuring they are well done. Through the global network of WOP practitioners, we have learned a lot at GWOPA about what makes WOPs more or less likely to work. Distilled, these lessons can inform partnerships that are less liable to fall into common traps, more adept at fostering effective learning, and better poised to seize opportunities. These lessons can guide utilities, donors and other supporting parties like governments to implement WOPs which are bound to generate results.

Ensuring WOPs objectives are framed by the SDGs and Human Rights is also crucial if they are to increase in meaningful impact. **Many WOPs help improve efficiency, but going beyond, to actually support increased access by poor communities to safe water and sanitation services, is the main goal.** Utilities can increasingly help one another operationalise these objectives. The SDGs also impel WOP partners to be responsive to local and present sustainability challenges. WOPs mustn't just be a vehicle for exporting technologies and approaches but a support in co-developing solutions that are desired

and which fit. For example, given current-day realities of water scarcity and high energetic costs of pumping water over long distances, WOPs might help utilities leapfrog right over centralised systems to more appropriate water and sanitation systems.

Another way to increase the effectiveness of these partnerships is connecting them with utility investment. WOPs can be a powerful accompaniment to investments, helping utilities prepare for, acquire and make sound use of funds for infrastructure. **Connecting WOPs – where the timing is right – with investments, can anchor and extend the capacity improvements they generate and help ensure new infrastructure is well-operated and sustained**. GWOPA is working to build in these linkages wherever they make sense.

3. What are the foreseen challenges and perspectives to implement efficient WOPs?

Scaling up WOPs requires **overcoming structural barriers to their adoption, including lack of funding and restrictive policies.** In this respect, governments and financiers can learn a lot from one another about strategies to facilitate this decentralised practice, such as enabling 1% laws to allow utilities to engage in international cooperation or creating synergies between local and national development programmes. What's clear is that WOPs are picking up. Just this year, development agencies in Germany, Finland and the European Union have committed to establishing new programmes for WOPs and various financial institutions are seeking out ways to use WOPs for technical assistance (often a challenge, since the co-developed nature of WOPs doesn't fit well into the competitive public procurement procedures commonly applied by banks).

As to operators themselves, lack of awareness of the opportunity for WOPs, and skeptical management are recurrent frustrations to WOPs adoption. **One of the best cures for these challenges is getting utility managers to hear directly from peers that have done WOPs; the enthusiasm is often quite contagious! The EU-WOP programme that the European Commission Directorate-General for Development and International Cooperation (DG DEVCO) and GWOPA are currently setting up for 2020** hopes to bring many new European utilities on board as mentors.

WOPs mustn't just be a vehicle for exporting technologies and approaches but a support in co-developing solutions that are desired and which fit.

EUROPEAN ASSOCIATION OF PUBLIC WATER OPERATORS
10 YEARS OF COLLABORATION FOR THE GENERAL INTEREST

SOLIDARITY TO REALISE THE GLOBAL RIGHT TO WATER

Towards better access to water

In 2010, the **United Nations' General Assembly** recognised water and sanitation as a **human right**.

In 2012, the first-ever successful European Citizens' initiative **Right2Water** gathered 1.8 million signatures to call for the **recognition of the right to water at EU level**.

In 2015, the **UN's Sustainable Development Goals** included a dedicated SDG on '***clean water and sanitation***' (SDG 6) and a series of specific targets towards 2030.

Therefore, in 2019, achieving the global right to water needs to remain a **priority at the top of the agenda**.

In the world, **785 million** people still lack basic drinking water service and **27%** of the population lacks basic sanitation service (*United Nations, Special edition: progress towards the Sustainable Development Goals, 2019*)

Solidarity mechanisms in international cooperation are a critical instrument to support increased access to water at the international level.

*Aqua Publica Europea is the **European Association of Public Water Operators.** For the past **ten years**, it has united **publicly owned water and sanitation services** and other stakeholders working to promote public water management at European and international levels.*
*Aqua Publica gathers **65 members serving more than 70 million people**, in an operator-led association that looks for efficient solutions that serve the public rather than corporate interests.*

The role of not-for-profit partnerships

Water Operator Partnerships (WOPs) are **peer-to-peer, decentralised cooperation projects** between utilities based on solidarity.

Sharing experiences and best practices with peers and experts is widely recognised a particularly beneficial tool for all parties involved in the process.

WOPs may take a **variety of forms** and make a great contribution to SDG 6 by supporting utilities in developing countries to **improve performance in water management**.

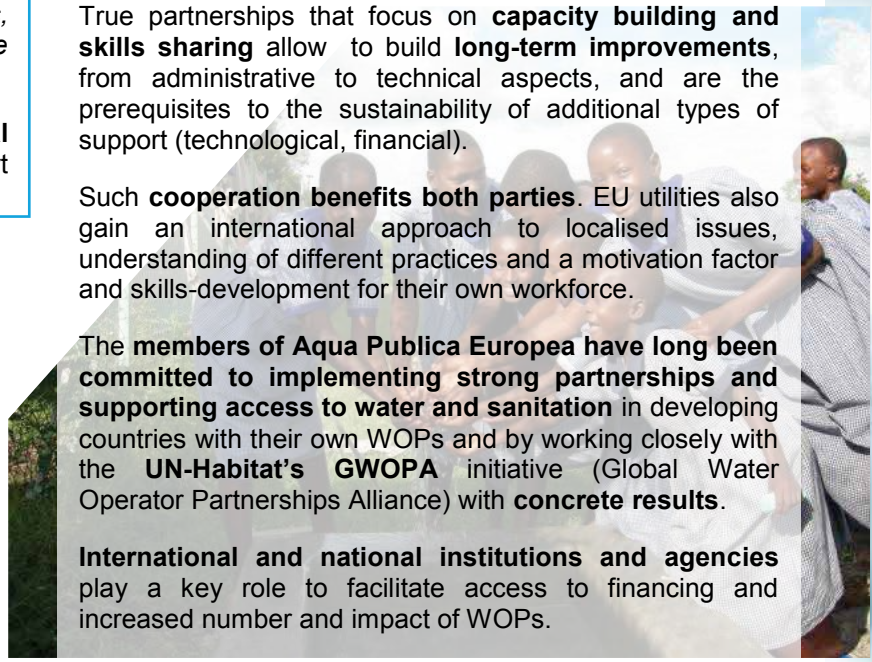
The **not-for-profit** approach taken by **public operators** facilitates the development of a **trusting relationship** and means that the benefits for the beneficiaries and improvements to water management **are not conditioned by commercial interests**.

True partnerships that focus on **capacity building and skills sharing** allow to build **long-term improvements**, from administrative to technical aspects, and are the prerequisites to the sustainability of additional types of support (technological, financial).

Such **cooperation benefits both parties**. EU utilities also gain an international approach to localised issues, understanding of different practices and a motivation factor and skills-development for their own workforce.

The **members of Aqua Publica Europea have long been committed to implementing strong partnerships and supporting access to water and sanitation** in developing countries with their own WOPs and by working closely with the **UN-Habitat's GWOPA** initiative (Global Water Operator Partnerships Alliance) with **concrete results**.

International and national institutions and agencies play a key role to facilitate access to financing and increased number and impact of WOPs.



Some examples

CAMEROON: STRUCTURING AN INTERCOMMUNAL UNION IN CHARGE OF WATER SUPPLY AND BASIC SANITATION SERVICES

In the department of Mbam and Inoubou (Cameroon), 9 cities were concerned about water supply and basic sanitation but did not have the capacities to assume this competency in the context of the decentralisation process.

Since 2005, the French operator **Syndicat des Eaux et de l'Assainissement Alsace – Moselle (SDEA)** along with other French and Cameroonian partners, has been involved in the creation of an **inter-communality** – an inter-municipal structure covering several communes, bringing together these 9 municipalities to **organise locally the public service mission for water supply and basic sanitation**.

Regular exchanges between the **elected officials and the administrative, technical and financial personnel** of the two structures helped to establish the functional principles of the **Syndicat des communes du Mbam et Inoubou – SYCOMI**.

This new body manages about 500 water points and latrines and ensures their maintenance, alongside the users. Residential users are organised in committees responsible for collecting a fee that contributes to the union's financial balance.

This action, funded by the EU (including the **ACP-EU Water Facility**), is now **being replicated** in other Cameroonian territories.

SENEGAL: PUBLIC-PUBLIC PARTNERSHIP FOR THE HUMAN RIGHT TO WATER

The project was developed by the water operator from Milan, Italy, **Gruppo CAP**, over three years and in the **Louga region** in the north part of Senegal, in the Kebemer district.

The project involved **4 rural communities comprising 35.000 inhabitants** and included the development of the following activities: the **drill a new well, build a new tank, install and develop a drinking water network and extend the existing network**.

The necessary funds for the project comes from the **Lombardy Region, National Senegalese Government and the ART GOLD programme** of the UNDP for local development.

The innovative element of this project is the **economic involvement of the local authority** (ARD – Development Regional Agency and DRH Hydric Regional Division) that represents the local community and at the same time the final users of the project. This is an example of cooperation at local and regional level and decentralised cooperation.

Furthermore, the creation of a **steering committee for the management and evaluation of the plant** - with the presence at least **50% of women** – represented an added value for the entire project.

PALESTINE: DEVELOPING A GEOGRAPHIC INFORMATION SYSTEM

The Barcelona City Council, through **Barcelona Cicle de l'Aigua SA (BCASA)**, has been cooperating for nearly three years with the **Water Supply and Sewerage Authority** (WSSA) from the cities of Bethlehem, Biet Jala i Biet Sahour in Palestine.

This cooperation was a proposal from the Global Water Operators' Partnerships Alliance (GWOPA) from UN-HABITAT and the framework of cooperation was signed in 2015.

Objectives were to link **BCASA experts in GIS and databases with WSSA technical staff** in order to develop WSSA's GIS for water supply and sewage.

In this context, BCASA and WSSA staff **exchanged information** related to setting WSSA's GIS that was under development thanks to other cooperation agreements that WSSA had ongoing.

Apart from the digital communication, WSSA staff has been able to **visit BCASA installations**, which has been very important for the success of the cooperation.

Further, the **Vice-Mayor of Bethlehem visited BCASA and the Barcelona City Council** with the purpose of consolidating the relationship and to boost other possible cooperation agreements between both cities.

ETHIOPIA: CAPACITY BUILIDING AND PARTNERSHIP DEVELOPMENT

The water operator from Turin, Italy, **SMAT**, provided support to **Arba Minch Town Water Utility** and Municipality in the Water and Sanitation sector through **capacity building and partnership development**.

The project was financed by the **ACP-EU Water Facility** and gathered several organisations: Hydroaid Water Development Management Institute, ENAS S.p.A., CISV, Polythecnic of Turin, AWSSE, University of Arba Minch, University of Trento, Town Municipality of Arba Minch.

SMAT provided **on-the-job training Ethiopian personnel on site and in Italy**. SMAT was involved in different training activities concerning particular aspects of **water infrastructures maintenance and management**.

BRAZIL: CITY-TO-CITY COLLABORATION AGREEMENT

Through the **International Urban Cooperation Program** of the European Commission, the cities of **Seville** (Spain) and **Vitória** (Brazil) collaborated in a Public-Public Cooperation project. They **shared good practices** in the **management of the urban water cycle, the revitalisation of degraded areas, the trees and the fight against social inequality**, amongst others. The also analysed the replicability of successful measures.

A **Common Action Plan** was to be presented to the European Commission and financial entities to attract investors and ensure execution.

Technicians from **Emasesa**, the water operator from Seville and the **Vitória water supply system** held **on-site work meetings** to describe the problems and challenges of the cities, the work teams and the stakeholders involved, to subsequently **design and plan the rest of the actions**.

DEMOCRATIC REPUBLIC OF THE CONGO: IMPROVING THE WATER DISTRIBUTION NETWORK

Under a **EU co-funded program** (75% EU – 25% VIVAQUA), **VIVAQUA**, the water and sanitation public utility from Brussels, Belgium, partnered with the water public utility **REGIDESO** in Kinshasa, RDC for the **enhancement of the water distribution network of the Congolese capital city**.

First, **training was provided** for sectoring, metering or leak detection and repair in a pilot district. Then, REGIDESO teams were **coached** to be able to **transfer this experience** to other parts of the city, allowing the teams to **effectively appropriate** the technical aspects.

At the end of the project, the entire city of **Kinshasa (10 million ha.) was sectorised off-plan**, as well as other important cities (Lubumbashi, Matadi). **Leak and fraud detection teams are now active** in the water network. With the new detection methods, REGIDESO was able to **recover lost sums and a significant volume of water** in the targeted neighbourhoods with high fraud and leakage rates.

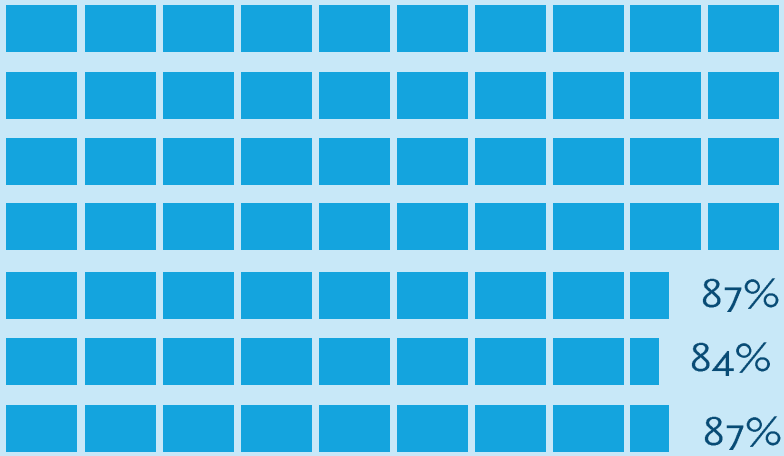
Effective participation of the citizens and the users in the decision-making will continue to be essential in the definition of the most appropriate services. The growing focus on participatory governance has been summarised within the members of Aqua Publica Europea with an infographic.

ACCOUNTABLE PUBLIC WATER SERVICES

Aqua Publica Europea is the European association of public water operators, gathering 65 publicly-owned utilities who provide water and sanitation services to over 70 million people in Europe

TRANSPARENCY

Aqua Publica Europea members provide information on



Information is available

ONLINE
company website or internet

OFF LINE
reports or paper publications

UPON REQUEST

Aqua Publica Europea as an association

PROMOTES DIALOGUE AND EXCHANGE

1. **Seminar: Information in the Water Sector,** Brussels, 2018
2. Working Group meetings on **Performance & Communication**
3. Member of the **OECD's Water Governance Initiative**

Information based on internal survey conducted with public water operators members of Aqua Publica Europea in 2017

Aqua publica europea 10

PARTICIPATION

Aqua Publica Europea members encourage participative governance

68% of Aqua Publica Europea members have a formalised stakeholder mechanism in place

Types of mechanisms

1. Structured engagement of stakeholders
2. Participation in decision-making
3. Observatory or consultation
4. Conciliation mechanism

EXAMPLES IN PRACTICE

1 — CAP — Focus groups on priorities

2 — The Scottish Government; aguas de Cádiz (El Agua es cosa de todos) — Strategies drafted with citizens' inputs

3 — Observatoire parisien de l'eau

4 — EMASESA — Ombudsmen

Why transparency & participation?

Stronger governance and better water management

Respond to citizens' **expectations**

Contribute to accountable services

A PARTICIPATORY APPROACH FOR STRONGER WATER SERVICES

As part of its activities, the public water operator will continue to seek ways to **interact with its users** and meet local society with the dual key objective to be **recognised and trusted as a partner but also to gain insight and stay up-to-date with users' needs**. Many different elements are set in place to gather inputs from civil society but also industrial users, farmers or authorities.

Increasingly, **citizens demand to be part of decision-making and are included in governance processes**, also in connexion with the recognition of the right to water, as a way to ensure citizens' right to participate actively in the decisions concerning the management of their water resources.

Public water operators strive to facilitate this participatory approach and Aqua Publica Europea members have taken actions to **empower their users** by giving them the opportunities to have their say. **In several cases, the operators' strategies were drafted with the participation of citizens**. Examples include **Scottish Water's (UK)** online consultation or **Águas de Cádiz's (Spain)** series of round-tables and meetings. Other examples include **invitations to thematic workshops**, as done by **Gruppo CAP (Italy)** or the availability of an **ombudsman**, like in Seville with **EMASESA (Spain).** Sometimes, an actual **water observatory** exists, as in Paris, which acts as a platform for exchange and review of decisions with stakeholders in a fully transparent manner

Upon the 'republicisation' of water services, Grenoble put a strong emphasis on transparency and participation and set up a user committee, which has been playing a role in decision-making for over 15 years, including in tariffing.

In parallel publicly-owned operators have a **close relationship with the elected officials** that they respond to and therefore, the **engagement of political representatives into the operator's decision-making process is essential**. On the one hand, **active involvement means better understanding and commitment to address the complexity of water challenges**. On the other hand, the political level may contribute to **the development of comprehensive strategies that reflect a more global, cross-cutting approach to territorial management**. Such elements strengthen the governance of the public water operator and foster co-developed strategies that are adapted to their contexts.

As a union of several towns and small villages, SDEA (Alsace-Moselle, France) aims to ensure the proximity with its participating municipalities by giving them political representation within its decision-making bodies and through a multi-level governance that allows altogether to identify local needs and responses; encourage synergies and pooling of resources between municipalities and design and define common policies and a global strategy.

Within its strategic plan until 2020, Eaux de Vienne (France) highlights as a priority the development of governance model that boosts the participation of elected representatives within consolidated local and territorial committees as well as through thematic working committees to support decisions.

InBW (Wallonia, Belgium) actively informs and trains its stakeholders and organises annual meetings between the General Manager and every participating municipality's mayor.

USER-ORIENTED SERVICES TO EFFICIENTLY RESPOND TO NEEDS

Beyond the acknowledgement of the importance of the inclusion of users in decision-making, public water operators **set operational targets for their performance in service to people**: from availability in answering phone calls to short timeline for resolving issues, and information about disruptions or operational transparency, the **public water operators is making the users its first priority for the next years**.

Irish Water: CER, the economic regulator, has set the levels of service which Irish water is required to meet in the Customer Handbook. It is supplemented by a number of Codes of Practice published by Irish Water.

Such focus heavily relies on both **skilled personnel**, with the development of internalised customer centres that can efficiently manage requests, and **technology** with the incorporation of digital instruments into the relationship between the operator and the users – dedicated phone apps, social media direct interaction, online information and communication tools.

The city of Mulhouse (France) has been focusing on providing citizens with digital tools for their public services, including an online platform, 'Eaupla' which gives users access to their water accounts and allows them to control their water consumption, also in relation with smart metering, to identify unusual patterns and potential leakage.

Abbanoa (Sardinia, Italy) has released a smart phone application for its customers. The new service offers easy access to citizens to their profile: consumption, bills, payments.

In Alsace-Moselle (France), SDEA invites citizens to give their feedback on their water, notably on the taste by becoming 'water tasters' for their localities.

AN ATTRACTIVE WORKPLACE, A QUALIFIED WORKFORCE

The main asset of a water operator is its workforce. Employment in the water sector is becoming a central focus with a dual challenge: the companies need to attract and keep new employees to replace retiring personnel as well as to have the skills that respond to new and emerging challenges – understanding of climate change or technological abilities, for example. Providing a professional framework **that allows growth and training and ensures the wellbeing of the personnel** is therefore essential to maintain a workforce that is both qualified and motivated.

For the third time in 2019, SIG-Genève, the multi-utility from Geneva (Switzerland) was awarded "best employer", in the category public and semi-public, by the magazine Bilan, highlighting, in particular, the efforts for work-life balance.

The personnel of the operator of Montpellier (France) participated, in teams, to the local marathon, which emphasised values of solidarity, team-playing and effort.

These efforts may include specific targets for a **more inclusive and diverse workforce**: from the ratio of women, as "*qualitative analyses show that women's involvement in the management of water resources and water infrastructure can improve efficiency and increase inputs*" (UN Report Water & Jobs), but also of people with disabilities and young professionals.

Eau de Paris (France) has signed an agreement with Fondation Agir Contre l'Exclusion as part of its inclusiveness strategy, to foster the inclusion of people isolated from the employment market and without professional networks.

Scottish Water (UK) was recognised as a Times Top 50 Employers for Women 2019 in the UK and an engineer from the operator was named as one of the most influential women engineers in the country.

In addition, **continuous training provides staff with the innovative tools to learn new skills that** then remain within the operator, thus contributing to a 'virtuous circle' for ever-stronger water services.

Gruppo CAP introduced CAP Academy, a training service by employees for employees in order to share competencies among colleagues and spread the existing knowledge in the company.

Acquedotto Pugliese (Apuglia, Italy) has developed its AQP Water Academy which is the framework for employee training – from management to new skills – with a total of 38.000 hours of training in 2018.

Wellbeing also stems from the **recognition of the worker as part of the company culture**. In this framework, several operators are implementing more work-life balance through initiatives to allow remote work, but also include workers in company decision-making.

VIVAQUA Over 250 VIVAQUA (Brussels, Belgium) employees participated in 2018, over a period of six months, in the development of the operator's VIVAnext strategic plan 2019-2024. Based on their expertise, the operator was able to outline the work ahead.

Belgian operator InBW (Wallonia, Belgium), in the outlining of its management values, organised workshop to allow the personnel to contribute and share ideas.

EMASESA (Seville, Spain) takes its employees' wellbeing into account through a range of dedicated initiatives including an e-learning platform to make continued training more accessible to the workforce, who may lack time to invest in training; as well as the programme EMASESA Saludable that cares for physical and psychological health at work and beyond: a series of campaigns has been carried out on topics including healthy diets, cancer prevention, emotional health, mobility and others.

The public water operators also focus on opportunities to **make the sector more attractive through international opportunities**, which is particularly important for public sector entities that are necessarily bound to their local context. Therefore, engaging in projects such as international cooperation partnerships (*see above*) or Aqua Publica Europea's Water Erasmus initiative (*see below*), is the opportunity to bring a new dimension to daily work, create the possibility to learn for colleagues with similar positions and values and develop new skills in new contexts.

AQUA PUBLICA EUROPEA

EUROPEAN ASSOCIATION OF PUBLIC WATER OPERATORS
10 YEARS OF COLLABORATION FOR THE GENERAL INTEREST

Water Erasmus
The international opportunity of a local service

Water Erasmus is Aqua Publica Europea's flagship initiative to **promote and facilitate cooperation between European public water operators.**

Water Erasmus offers the opportunity for technical staff from member operators to travel and meet their peers to discuss issues of common interest, exchange expertise, visit infrastructure and launch joint projects.

Focusing on the idea that **knowledge circulates with the people,** Water Erasmus contributes to building long-term skills, as well as a common understanding of the mission of European public services, a building block of our shared European future.

For the publication *Water Erasmus as told by the participants,* Aqua Publica Europea collected the feedback of the teams who had actually taken part in an exchange. The main takeaways include: **learning from others' experience on common issues; meeting and exchanging with peers from technical teams; starting long-term collaboration; creating a common knowledge and excellence space; comparing methodologies with similar structures.**

INTERVIEW

David Boys

Public Services International

1. *From your point of view, what do you expect from public operators of the future, what would be good in terms of management practices within public operators regarding employees?*

We look for political leaders and government programs that respect the rights to water and sanitation, and how governments bring together the tools to implement these rights, starting with the appropriate budgets, and governance tools of transparency, accountability and participation. Government austerity policies and privatisation conditionalities from the donors can really destroy the utility. As can nepotism, patronage and corruption in all its forms.

We also expect utilities as employers to respect worker rights, and to engage workers in planning and decision making, in full recognition of their experience and expertise. The ILO's Decent Work Agenda and core principles outline what workers need. Workers do not like to be outsourced, underpaid, undervalued and disrespected. They want to be able to provide for their families and to have some security about where they will be working next year. They need the freedom to join a union and negotiate collectively. Outsourcing is a real poison, as it reduces staff to poorly paid units of billable hours run by external corporations that are not committed to human rights.

After you have established conditions of respect with your members, it is about engaging: one of the best ways for management to engage the workers is through trade unions. The ability of the workers to associate and to bargain collectively and to have a range of discussions with managers through these unions is fundamental. We also found amongst our members that **the recognition of their public service is as important as pecuniary considerations.**

Future-looking labour and management should see each other as equals, to respect each other for what they do and to work together for the good of the community.

Recently, a lot of senior managers, especially in the biggest utilities, come from finance and do not know the sector. Management then makes decisions based on financial and commercial bases as opposed to what is good for the community, for the citizens and for the workers.

2. *About management and labour working together, can you give us a few more words about why the engagement of workers in the decision making of the public water utilities – in particularly through union representatives – is important for the sustainability both of the company itself but also of the environment and of the society? How is participation from workers a condition for the sustainability of water utilities both internally and externally?*

Social sustainability means that workers should be able to sustain their families. This is typically achieved with collective bargaining and in respecting the core labour standards and the rights to join union and to bargain, which are preconditions. In a lot of countries this is not the case.

Then, in terms of the evolving workplace and better serving the community, the best examples are where **labour and management are together responsible for setting the standards for training, skills acquisition and career progression.**

Adults better learn by doing, so how to link the daily workplace, which can be repetitive, with continuing education and skills acquisition? In some countries, we see that it is the workers and trade unions that set up the training schools, in some others, labour and management together set the technical standards. It is **by getting to those levels of cooperation and of investment in your staff that you will have more engaged workers, willing to take risks.** Workers are not willing to assume risk without a sense of being engaged and supported. This is especially true of occupational health and safety, when dealing with chemicals, with repetitive stress, where workers reserve the right to refuse.

3. In water utilities, the skills needed are evolving. from your perspective is this also valid within an operator or is there something more or specific that needs to be done or addressed to avoid that part of the workers feel less and less relevant within the organisation?

If you are going to bring workers' representatives onto the board of directors, as they have done in Paris, those workers need to be trained. Only the biggest trade unions will know how to do that. Sharing in decision making requires training and practice from all parties.

Every time that institutions talk about stakeholder consultation mechanisms, my first warning is that it takes time. However, **decisions can be more solid and can lead to a better performing workplace.** It can enable to anticipate and propose solutions that may not have been thought in management, by the political party or by the engineers. Therefore, the **ability to connect the workforce and management with the people being served is a worthwhile investment.** Often we are behind our gates and there is too much separation.

If we consider the climate chaos and the need to adapt, it will require tools that are not available in all water utilities who will have to reach out across several disciplines and upgrade specialities to be part of bigger teams that are dealing with climate chaos.

Finally, we should highlight the importance of public-public partnerships, the water operator partnerships which enable to send teams of workers, who have possibly been doing the same work in the same environment for 20+ years, to a completely different environment and to engage them in partnerships where they can both learn and teach, without feeling the pressure to sell their proprietary software or filtration units, but instead where they can effectively jointly solve problems. It is especially true when we look at inequalities among communities within the same country or across borders, workers can get a lot of motivation to know that they are part of making the world a better place.

We should highlight the importance of public-public partnerships, the water operator partnerships which enable to send teams of workers, who have possibly been doing the same work in the same environment for 20+ years, to a completely different environment and to engage them in partnerships where they can both learn and teach, without feeling the pressure to sell their proprietary software or filtration units, but instead where they can effectively jointly solve problems.

RAISING AWARENESS WITHIN THE COMMUNITY ON WATER ISSUES

Public water operators are investing significant resources in **information and didactic activities on tap water consumption**, with a twofold objective: raising awareness on the most affordable and environmentally-friendly option for drinking water, but also increasing knowledge on the challenges and complexities that managing the water cycle involve. This is a matter of public health and social equity, but deeply reliant on the citizens' confidence in tap water.

Eau de Paris' (France) Pavillon de l'Eau welcomed 22.000 people.

Opened in an historic pumping station, MM's (Milan, Italy) public centre combines a museum with educational activities and information on water issues. Since its inauguration in 2018, 27.000 visitors have participated in events, concerts, conventions and activities designed for children. Particular attention is paid to the training of educators to expand and share their knowledge of water services.

In 2019, Aqua Publica Europea published Untapped: Promoting tap water in Europe, a collection of actions taken by member public water operators to increase access to water and develop awareness and information about water quality and benefits.

In addition, this role also allows to shed light on broader issues related to water and environmental sustainability, including how to reduce usage of water or how water, or the nutrients included in it, can be reused in a circular economy framework, for example.

Gruppo CAP (Milan, Italy) installed "Water Houses" which in addition to providing free still and sparkling water, informs citizens on the water cycle and the quality of tap water.

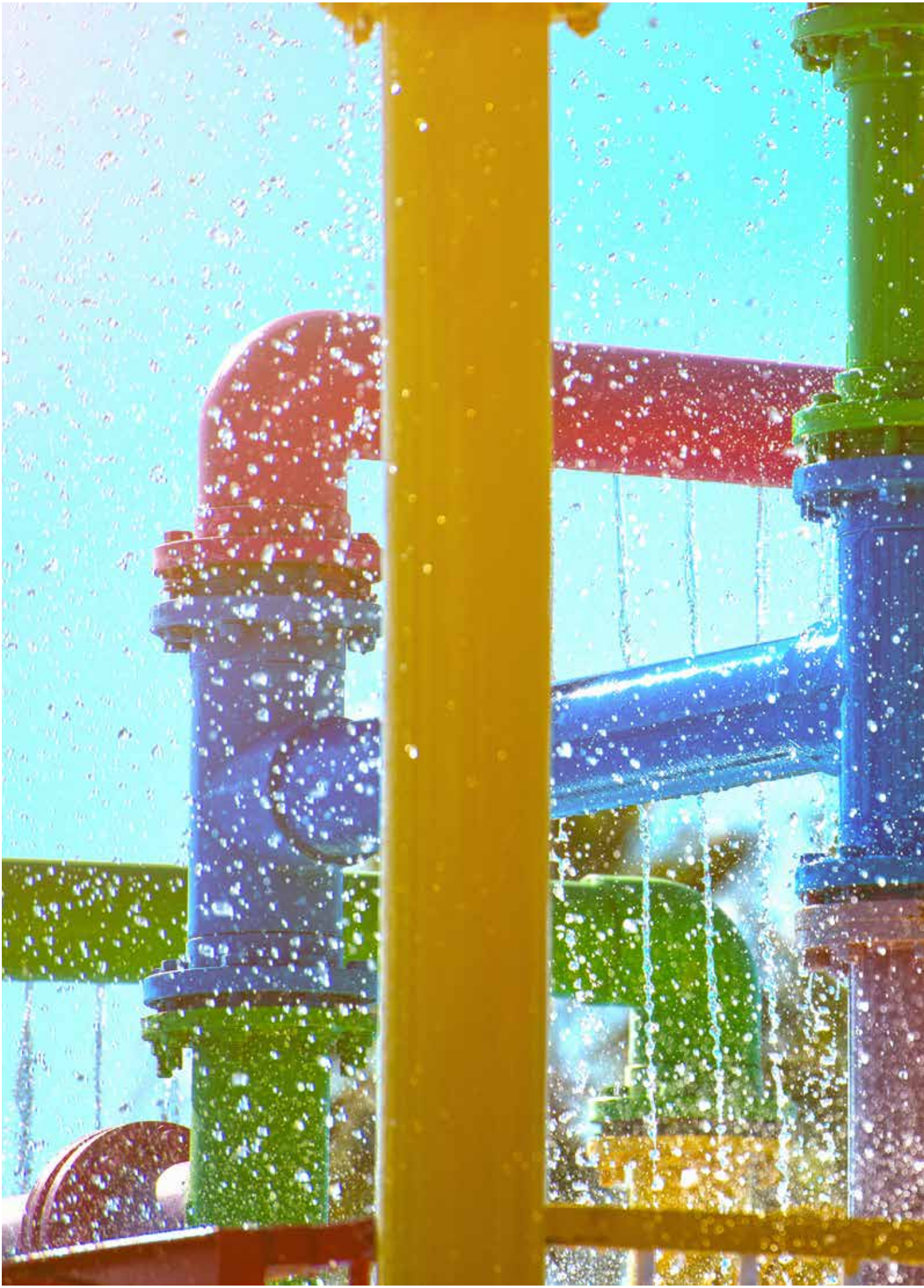
Águas de Gaia (Portugal) publishes the adventures of 'super-hidro', a comic book for children, to raise awareness on water good practices, in particular, regarding disposal in the waste water system.

AquaFlanders, the Federation of Flemish water companies and sewer managers, launched a campaign to promote tap water as a healthy, environmentally friendly and cheaper alternative. As part of the campaign, a dedicated website, www.kraanwater.be, provides comprehensive information to citizens on different water-related topics.

Interactions take place at different levels: water operators meet all users regularly through street and public campaigns; vulnerable populations are given a particular attention, notably in times of droughts where access to water is even more vital; the education of children, who are the future of our societies, allows to develop knowledge on sustainable practices.

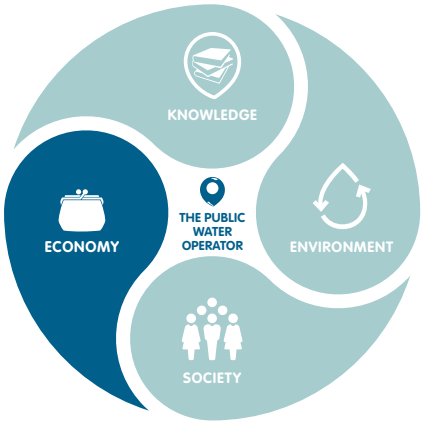
The campaign conducted by Aguas de Cádiz (Spain) in collaboration with the city's education department, throughout the school year 2018-2019 successfully promoted, through practical learning with professionals and adapted to age, environmental education towards 4.000 primary school students from 21 of the city's 29 schools (93.33 % of public schools). The project developed knowledge about the water cycle, raised awareness on the importance to safeguard water and the environment and on the benefits of drinking tap water.

Padania Acque's (Cremona, Italy) Drinking Water Report is a school work programme and job training project towards applied science high school students: in addition to treatment plant visits, students are asked to conduct on street surveys on the local population's drinking habits and water awareness.



ECONOMIC SUSTAINABILITY

a public approach to ensure investment need, affordability and water efficiency



The management of water is an economic task: it requires significant investments, and decisions on assets and resources management need to consider economic implications concerning both an efficient use of water resources and access to water.

Water infrastructure in Europe represents **thousands of kilometres of pipes, aqueducts and thousands of sites for water and waste water treatment**. This network allows the water operator to fulfil its mission of providing clean and safe water for all uses.

Whilst, across the European Union, **these networks are often historic**, in some cases even a century old, they are not yet complete especially as regards sewage networks. So, our societies are facing here a double challenge: maintaining and renovating old assets, and building new ones. Both missions require important investments.

Further, **environmental, technological and social changes** which have and will continue to revolutionise our lives, also affect this infrastructure: climate change puts pressure on networks, in particular in periods of heavy rainfalls; population changes require adjustments to meet growing demand in urban centres as well as the needs of remote populations. At the same time, digital instruments provide new opportunities to tackle challenges but require investments to be developed and implemented.

In addition, meeting the **high-quality requirements** set at national and European level for both drinking water and sanitation operations require significant investments in **treating capacity**; investments that are expected to continue growing in response to even stricter requirements.

The **'cost recovery' principle**, as established in the EU Water Framework Directive[36] makes it mandatory for water services to recover costs either through tariffs or transfers. In addition, the WFD also requires that tariffing mechanisms pursue a water efficiency objective (that is, giving an economic signal about the scarcity of the resources in order to avoid waste and over-use).

However, tariff setting has obviously to take into account affordability considerations if we want to realise the right to water, as recognised by the UN*.

Therefore, tariffing has to reconcile different objectives and requirements: **the need to recover the costs incurred by the water cycle; the need to ensure that the cost of water remains affordable whilst giving incentives for its sustainable use.** Considering the significant amount of investments needed to maintain and expand assets and to keep water safe), balancing these needs is a daunting task**.

It is therefore essential to find ways to **cover investment needs to ensure long-term financial sustainability of water services, guarantee highest quality, security and resilience as well as affordability and access to water for all**. The public water operator, with a focus on **serving the general interest rather than seeking economic profit**, will continue to develop methods to ensure sustainability and fairness. To do so, public operators are working to develop approaches that place economic analysis and needs in relation with the wider **social ecosystem**.

The establishment of a **European observatory on water** is an option proposed by Aqua Publica Europea. An observatory would allow **all stakeholders to collaborate in the development of methods to assess and understand 'water poverty' in Europe** and work on methodologies to tackle it, with a long-term, evidenced-based approach.

* In 2010, the United Nations' General Assembly recognised access to water and sanitation as a human right and added that this right is realised through "safe, clean, accessible and affordable" water

** The Organisation for Economic Co-operation and Development (OECD) has carried an evaluation (unpublished yet) of the investment needs for the water sector in Europe, confirming that investments will need to increase in the coming years, but also that there is a risk of impairing affordability.

INTERVIEW

Xavier Leflaive

Organisation for Economic Cooperation and Development

1. What are the main needs the water sector will have to address in the next decade in Europe?

The water sector in Europe will face several needs in the coming decades. I would like to highlight 4:

- **One is securing access for all**. While most city dwellers usually have access to good quality services across Europe, there are still some concerns for selected groups, including migrants, homeless people and communities in remote places. Even if they do not represent large numbers, they need to be addressed. Affordability will need to be factored in, when considering technological and financing models. OECD forthcoming report on how to address the social consequences of water pricing alludes to this issue.

- **Another need is to address the backlog of investments in several countries.** That backlog derives from insufficient efforts in the operation and maintenance of existing assets. It leads to premature decay of the infrastructure and possibly decreased service quality in the coming years/decades. In several countries, the need to address the significant backlog is likely to require a change in the financing model: postponed investments will come at a higher cost and general taxation or revenues from tariffs may not be able to cover these costs.

- **Another one is to adapt existing services, infrastructures and levels of security to shifting circumstances,** including uncertainties about future water availability, quality and demand. On-going discussions at the Roundtable on Financing Water explore how conservative biases in financing mechanisms and institutions can be overcome, so that the benefits of flexible approaches can materialise.

- Finally, **service providers need to engage more with water resources management.** Utilities can probably do a better work at contributing to wider water policy objectives, such as conservation, or the ecological status of water bodies. It is a call for strengthened stakeholder engagement and reaching solutions in partnership with other sectors, such as agriculture, industry, energy and urban planning. See OECD publication (2015), Water and Cities. Ensuring Sustainable Futures , for a more detailed discussion and concrete illustrations of good international practices.

Note that I do not consider compliance with EU regulation as an additional challenge: more stringent regulation (which is likely) is meant to help countries address their existing or forthcoming challenges. From that perspective, I see regulation as support, not an additional constraint.

2. What are the specific challenges to ensure to ensure sustainable financing of the sector?

On-going collaboration between the OECD and the Directorate General for Environment of the European Commission analyses how financing capacities in EU member states match future investment needs, to comply with the Drinking Water and Urban Wastewater Treatment Directives. The final report is due at the end of the year. One preliminary message is that **most EU countries will have to increase the annual level of expenditures for water supply and sanitation by more than 25 %, if they want to comply with both Directives and minimise leakage.** Countries face distinctive challenges to cover these needs.

Looking ahead, moving to **tariffs that reflect the costs of service provision seems to be the most robust financing option.** Such a transition is best accepted if i) utilities can demonstrate the value for money; operational efficiency and engagement with stakeholders are key; and ii) affordability issues are properly addressed. The main message needs to be reiterated: **cheap water hurts the poor as it deprives utilities from revenues that are much needed to maintain existing services and extend service coverage.** It is more effective to address affordability issues through targeted social measures than through water tariffs. A few countries deserve distinct attention (including Bulgaria and Romania), where more than 10 % of households would face affordability issues if tariffs were to better reflect the cost of service provision.

This does not mean that tariffs should not be reformed in those countries, but reform would require well-thought accompanying measures. Revenue from tariffs should be ring-fenced to cover the costs of service provision (which is not the case in some countries).

Another challenge will be to mobilise additional capital and strengthen the financing systems on which investments rely. One way forward is to deploy public finance (and cohesion funds where they are available) to mobilise additional capital (essentially domestic commercial finance). Our report OECD (2019), Making Blended Finance Work for Water and Sanitation, although it was initiated in a developing country context, proposes a series of practical options.

3. What are the main recommendations – towards both water operators and public institutions – regarding investment and financing approachesto address these challenges?

The recommendations derive from on-going discussions at the Roundtable on Financing Water mentioned above, where water and finance professionals meet:

- One recommendation is to **make the best use of existing assets (maintenance, reducing non-revenue water, etc.)** Further postponing expenditures to maintain and renew existing assets will only increase future costs. While addressing the existing backlog, authorities (national and local) should **value and encourage flexibility,** defined as the capacity of a service or technology to adjust to shifting circumstances. This perspective can lead to reassessing the benefit of water resources management (protection of catchments; water use efficiency; land use and forestry that can increase resilience to water-related risks.)

- Another one is to **make the best use of existing financing resources.** As mentioned above, existing funding can be leveraged to mobilise additional capital and strengthen the financing systems on which investments rely (instead of just funding investments, thus crowding out other sources of finance).

- The **capacity of authorities and service providers to demonstrate value for money will be essential to increase the willingness to pay of water users**. With this end in view, many countries would benefit from beefing up the way long-term planning is being made and drives investment decisions; the UK and the Netherlands have a lot to share. Investments that deliver tangible benefits to water users now and in the future should be prioritised.

- In that context, the European Commission can help countries transition towards sustainable water management and water supply and sanitation services. Support will be multifaceted, from **sharing information and good practices,** to urging thorough planning that factors in future uncertainties, setting priorities that benefit communities on the ground. Financial support is essential, but it is not the silver bullet, in particular in countries which struggle to make valuable use of available finance.

4. What are from your perspective the main scenarios regarding the future models of financing of the water sector?

Future financing models are likely to pay much more attention to value for money. **Value for money is a requisite to ask water users, tax payers or other financiers to foot the water bill.**

- Value for money requires **thorough planning, prioritization and coordination across policy areas.** I was interested to see that, while Lithuania invested significantly over the last decades to provide access to safe water and improved sanitation, only half of the existing capacity is used (essentially because users are reluctant to pay the connection costs), raising questions about the consistency of policy, institutional and financing frameworks.

- Value for money also requires **smart allocation of risks and revenues across a range of financiers, to attract diverse sources of funds** (including domestic commercial finance). Europe can pioneer and innovative

financing mechanisms, where public finance and external assistance (such as the structural funds) can be used to derisk investment and attract commercial finance. Note that commercial finance does not mean private operation of the service.

- Finally, **understanding the value of water management and water services creates opportunities to harness new sources of finance.** For instance, while property developers benefit from high value services (including protection against flood risks), they hardly contribute to financing the service. In Casablanca, Morocco, property developers contribute to the cost of storing water upstream to secure access, through land development taxes. The afore mentioned publication Water and Cities. Ensuring Sustainable features detailed examples on this regard.

5. Investments and asset management in the water sector are characterized by a long time span, which increases uncertainty of the decision-making process. What can be done to reduce such uncertainty, thus improving the long-term effectiveness of investment decisions?

Obviously, **better data** can only help, on future water demand and availability, on the performance of networks and existing assets. We can expect further progress in modelling and in benchmarking. But the point is that uncertainties will remain and public authorities and service providers need to make decisions when they do not know. **Uncertainty will need to be managed (rather than just reduced).** For decisions where there is high confidence in the information available, robust approaches can be used to design systems to function well under a range of future conditions; where there is low confidence, flexible, iterative approaches are more appropriate. This is where the capacity to value flexibility, to adjust to future needs and conditions is critical. I do not think we have the tool and metrics to do this now. This is an avenue for research, for both academics and practitioners. I trust Aqua Publica can play a role here as well.

Finally, service providers need to engage more with water resources management. Utilities can probably do a better work at contributing to wider water policy objectives, such as conservation, or the ecological status of water bodies. It is a call for strengthened stakeholder engagement and reaching solutions in partnership with other sectors, such as agriculture, industry, energy and urban planning.

NEW TECHNOLOGIES TO FOCUS INVESTMENTS WHERE MOST NEEDED

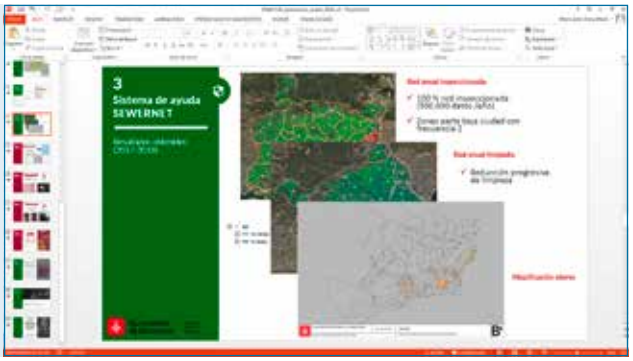
The first response to minimising investment needs is focusing interventions only where really needed. With networks dating back decades and difficult to access, the initial step is to **develop accurate mappings of existing infrastructure, in order to target interventions where most needed.** New technologies allow to carry out this first and paramount mission. Geographic Information System (GIS) as well as sensors and automatisation facilitate the development of **strong understanding of current assets and allow for long-term planning**.

Eau de Paris (France) has set the target to have a complete mapping of its assets by 2020.

Irish Water operates and maintains several hundred thousand individual mechanical and electrical pieces of equipment across 7.000 sites. Best practice asset management involves the care and maintenance of the assets based on comprehensive asset data so that the best value is obtained for the assets and water services are delivered at least cost. Irish Water has developed an assets register down to individual component level, against which individual standards will be put in place, with a priorities to identify Critical Assets and address the condition and likelihood of failure and its consequences.

To better detect and monitor the presence of leakages, MM (Milan, Italy) installs a fixed fibre optic system in its wastewater network, the fastest method for transferring information between two points, with a view to control the structure, detect anomalies and monitor flows and temperatures. 2 fibre optic lines along the entire sewage collector allow to carry out continuous measurements and transmit them to a unit equipped with analysis software whose data will be acquired and managed by the MM control centre.

BCASA's (Barcelona, Spain) system for smart analysis of the sewer system, SEWERNET, is a free software that supports decision-making for intervention planning with real-time data on the network.



The benefits of focusing on network understanding include the possibility to have efficient monitoring, real-time data collection and storage, as well as alert system and therefore fast reaction in case of incident. Having a clear picture of assets permits the **identification of asset failures** and gives the tools necessary **to take the most cost-effective decisions**. Investing in technology first in a sector which is particularly capital intensive is an opportunity for more **sustainable and responsible use of public finance**.

A REASONED STRATEGY FOR INVESTMENT

The **investment strategy of the public water operator needs to be fully evaluated and planned in consideration of current needs**, but also on the burden that would be transferred to future generations, either from financial debt, on one side, or deteriorating quality of infrastructure, on the other side.

Investment decisions consider the entire life cycle of the infrastructure, along with its expected performance and a risk analysis. The view is developed in the **very long-term**, due to the nature of the service and, as a public service, the operator has the ability to foresee years beyond what would be a potential concession contract – which are typically 20 to 30 years long.

A reasoned investment strategy implies that the assets are evaluated and that the decisions to either replace elements that need to be updated or fix those that can be maintained, are taken depending on the **most cost-effective option**. It remains a priority to optimise existing assets for the best possible performance before investing into future liabilities. The same goes for decisions on new plants and treatment facilities *(see chapter I, Preventing pollution, old and new)*.

Eau de Paris (France) enshrined the concept of 'reasoned investment' into its strategy and developed a multiannual plan that spreads out a total investment of €455,50 million euros over several years with three pillars: renewal and modernisation of the heritage, accompanying the ecological transition; and security of supply; water quality and service to the user.

APPLYING A FAIR TARIFF: BALANCING AFFORDABILITY POLICIES AND COST-RECOVERY REQUIREMENTS

The first response of public water operators to address affordability issues is to minimise costs through preventive approaches and reasoned investment strategies, as well as reinvesting all the economic resources in the water cycle.

As 'water poverty' is actually a manifestation of general conditions of economic difficulties, the problem should always be addressed through general redistributive policies. Still, when the welfare state is failing or insufficient, public water operators members of Aqua Publica Europea are committed to implement **concrete, voluntary actions to address affordability of water** and therefore contribute to a better access to water for all to realise the human right to water.

Examples include the **design of specific financial support mechanisms**, which can be done in cooperation with social services to identify the vulnerable households. In this case, and when possible, the billing depends on the socio-economic status of the household as well as the capacity for the water operator to know the individual consumption, which may imply further challenges when individual metering is unavailable. Such solutions include: lower bills; increased block tariffing – which means that tariffs increase with water usage; or even, in some cases, a free amount of water covering basic needs.

Further, the public water operator may work to **support bill payment rather than reduction *per se***. In this case, some operators set up **solidarity funds** which allow to collect financial resources from bills that can cover those of most in need: this actually represents forms of 'water-based solidarity'.

In parallel, **awareness-raising methods are options to reduce the consumption of water and therefore the final bill**, with water ambassadors programmes or direct information on consumption and the factors that affect it such as, for example, outdated appliances or unidentified leakages.

Aqua Publica Europea's publication Water Affordability: Public water operators' views and approaches on tackling water poverty provides an overview of members' schemes to foster water affordability.

INTERVIEW

Andrea Guerrini

WAREG

(European Water Regulators)

1. From your perspective (WAREG), what are the main challenges the water sector will have to tackle in the coming years and how can regulation help address them?

WAREG is the first association of water regulatory agencies in Europe. Established in 2014 and hosted by the Italian Regulatory Authority for Energy, Networks and Environment, which also holds its Presidency, it is based on the voluntary cooperation among 31 Agencies with supervisory and/or adjudicatory powers on economic regulation of drinking water and wastewater services.

- One of the main objectives of our WAREG Associates is to **ensure that public water and wastewater infrastructures maintain adequate quality standards,** in order to avoid negative public health outcomes. From our surveys we observed that there is a need for significant and sustainable investment in such infrastructures, in order to address the growing pressures from environmental change, increasing demand and compliance with EU environmental standards. This is in the context of ageing infrastructure and/or previous underinvestment in many EU countries.

- However, even though water in itself is a public good, delivery of qualitative drinking water and sanitation services to the entire population in a country is an industrial process that requires high expenditure in infrastructures and maintenance operations over the years. Consequently, another common challenge for WAREG Regulators is to **ensure that additional costs for investments and operations, although targeted at meeting environmental safety and health standards, are fully recovered through affordable tariffs for all customers, in particular the most vulnerable ones.**

- Full support to the objectives on drinking water quality set by the European Commission proposal for a new Drinking Water Directive was expressed by WAREG in a recent position paper, where it was also asked to recognize more clearly in European legislation the importance of the action of economic regulators, whether at national, regional or local level, in order to ensure universal access to safe drinking water, economic affordability and transparency of water prices for households.

- Additionally, some WAREG Associates are concerned with the proposed new EU regulation on minimum requirements for water reuse, that seems to promote a common framework to address the risks associated with water scarcity in several EU countries. The aims of the proposal to encourage more rational use of water, especially in the agricultural sector, are acceptable and their implementation could greatly benefit from regulatory tools.

2. How, more specifically, can regulation drive water utilities in designing sound and long-term oriented investment strategies?

- Economic regulation works to address market failures for the benefit of the customers that they serve. Market failures can occur in the absence of sufficient competition in the delivery of services with negative outcomes for consumers of those services. Economic regulation is able to address these failures by introducing competition where appropriate or by using other measures that address price and/or standards of service provision.

- Experience in sectors such as energy illustrates the **valuable role that economic regulators can play in supporting efficient delivery of necessary infrastructure for the benefits of customers of service providers and wider society.**

- The **economic regulatory toolbox available may differ depending on several external inputs,** such as for instance type of regulatory powers, division of roles between different levels of administration (central, regional, local), water industry size, ownership structure, and other factors existing in a given country.

- **Regulators have to remain neutral** with respect to investment and operation choices, however they can have some key tools to generate incentives to design sound and efficient strategies, such as:

  - power to **approve capital investment plans,** capital and operational expenditure and associated charges for services to ensure necessary and efficient expenditure for defined outputs and outcomes that benefit customers;

  - power to **set and enforce defined standard for services to customers.** For example, standards related to accuracy and frequency of billing, customer contact response times, notice of planned supply interruptions and complaints resolution processes and timelines;

  - power to **monitor and report on performance.** Economic regulators can monitor and publish reports regarding delivery against that committed to by utilities for the costs the regulator allows them to recover from charges for the provision of services.

3. Responsibilities and institutional role of regulators vary from country to country. Despite these differences, what common trends do you see in the evolution of the "job" of regulator?

- According to the internal governance arrangements, regulation can be carried out at local, regional and/or national level, and in some instances there are forms of self-regulation. In half of EU countries economic regulation of water and wastewater services is centralized by law into a national independent Authority. At the same time, where local regulation applies, Municipalities often find it difficult to accept guidance from a central Authority at national level, hence harmonization of rules and quality standards should rely on different tools than those adopted.

- Most importantly, despite the huge differences in regulatory models, similar problems can be found everywhere in Europe, which can be typically addressed by a regulator, such as:

  - finding **adequate financial resources** to address infrastructure investment needs;

  - **driving cost-efficiencies for operators** and value for the money paid by consumers;

  - promoting **reputational incentives** on regulated utilities to improve performance by increasing efficiency of service delivery;

  - engendering **public trust and confidence** in regulated utilities.

There is a need for significant and sustainable investment in such infrastructures, in order to address the growing pressures from environmental change, increasing demand and compliance with EU environmental standards. This is in the context of ageing infrastructure and/or previous underinvestment in many EU countries.

THE ROLE OF EXTERNAL FINANCING

In order to bridge the investment gap, several options for **external financing** are available and it is the role of the public water operator to seek the most sustainable alternative which minimises the financial burdens in the long term. In this framework, an **appropriate mix of finance** relies on the availability of funding for water-related projects from private and public organisations.

The water operator may turn to **loans** from organisations, such as the **European Investment Bank (EIB)**, the "*largest lender to the global water sector to date*" [37] and which, thanks to its public nature, can work on longer term maturity and low returns, two characteristics that are specific to the structure of asset management of the water sector. More generally, the **role of public banks** is evaluated, as they, like public water operators, are supervised by public authorities and operate with a mandate for the **general interest**. Such synergies are opportunities to strengthen the sectors and **positively affect the local and national economies**.

In 2019, the European Investment Bank granted a loan of €200 million to Sardinian operator Abbanoa (Italy) to support the operator's plan for investment in infrastructure with a strategic focus on new technology and hydraulic and energy efficiency. Priority interventions include the construction of experimental operations for the treatment of urban waste for the production of biogas and the management of sludge for reuse in agriculture.

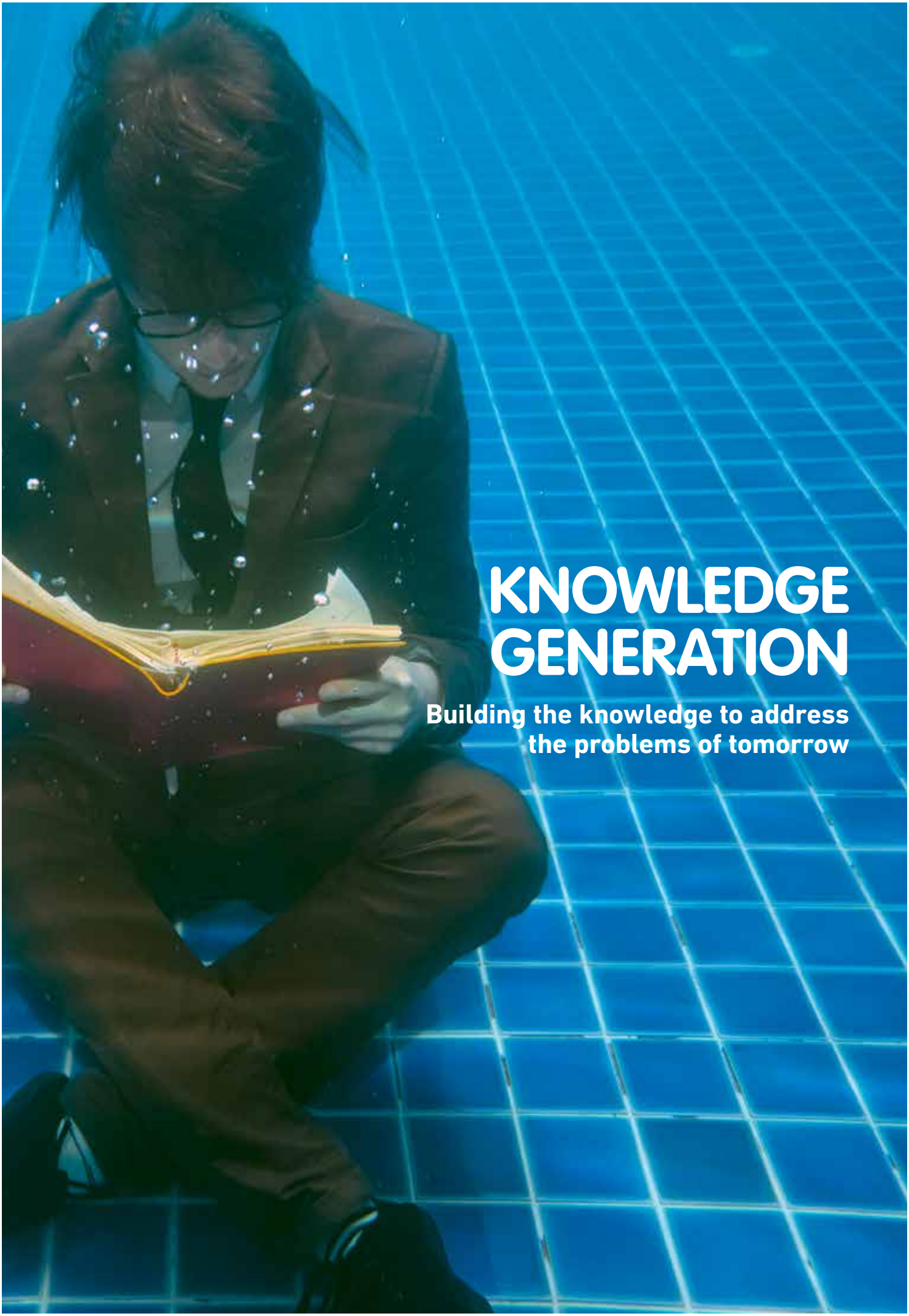
The Montenegrin coastal operator showcased healthy financial management and stability, whilst undertaking the largest infrastructure project in the country since independence, which allowed support from the European Bank for Development and Reconstruction.

Also as a way to access the EIB loans more swiftly, public water operators commit to improving their financial diligence as well as reaching the adequate scale of operations to comply with the minimum size of investment loans granted by the EIB.

Twice (in 2014 and 2016), the Viveracqua Consortium (VenetoRegion, Italy), composed of 14 public water service operators launched a Viveracqua Hydrobond: 'minibonds' were issued by local financial bodies, such as Veneto Sviluppo. This made it possible to obtain a loan of *€150 million* euros from the EIB and to support 300 million works in Venetian provinces.

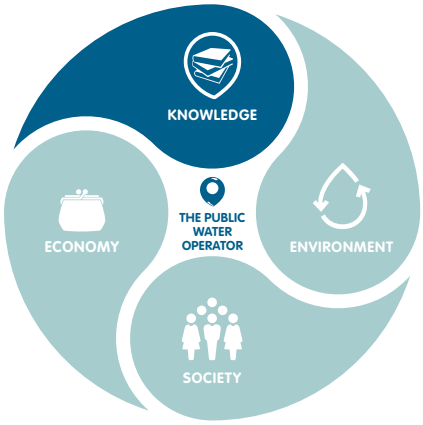
In 2016, MM (Milan, Italy) implemented its financial strategy to cover the entire investment needs included in its plan until 2037, which relied on a long-term diversified approach, avoiding refinancing risk and implementing innovative financial instruments, thus issuing a €100 million euro amortising notes (due 2035) listed on regulated markets and signing with the European Investment Bank a €70 million financial agreement (due 2034), which has been the first EFSI project in Italy exclusively related to water investments.

In the context of its sustainability strategy, its Green Finance Framework, and in collaboration with Belgian bank Belfius, SWDE (Wallonia, Belgium) announced the emission of Green Bonds for €10 million through which the operator aims to attract new investors looking to support sustainable projects. The financing concerns in particular renewable energy and energy efficiency projects, as well as resource protection, amongst others.



KNOWLEDGE GENERATION

Building the knowledge to address the problems of tomorrow



Previous chapters have shown how, like in almost all societal dimensions, also in the water domain the scientific and technological content of routine operations has been growing. That imposes on water operators the need to develop innovative ways of **interacting with the scientific world, in particular by developing new 'knowledge interfaces'** that can foster a fruitful dialogue.

Public water operators are committed to increasing efforts and resources to both absorb and contribute to frontier research. They are also committed to adopting the best available technologies, not as a condition to gain competitive advantages and increase profits, but in order to provide the best service at the lowest cost and the lowest environmental impact. It is also a condition for public water operators to contribute and be part of the evolution of the society.

Concretely, this means that, on the one hand, the **water operator may be a source of knowledge** by making available data and information for the benefit of other public authorities and stakeholders.

On the other hand, sustainability implies that knowledge continues to be transferred to and built upon by next generations through high quality education. The development of the skills and motivation for the water sector also means a necessity to develop an **interconnection between on-the-ground realities and theoretical education**. In this sense, several public operators members of Aqua Publica are activating **partnerships with academia and research institutions** to close the gap between university and concrete water operations, as well as to promote the development of water management-oriented curricula.

Beyond scientific knowledge, public water operators have to constantly innovate their operating models by sourcing innovative solutions from the market. In addition to continuously monitoring technological developments, **public water operators are also actively stimulating private companies to increase their innovative efforts to develop more efficient solutions**. From the launch of 'innovation-oriented public procurement' to innovation awards for local SMEs, public water operators are aware of their potential role in stimulating the market and adopt a pro-active stance in this context.

FOSTERING EXCELLENCE IN WATER SERVICES BY ABSORBING, USING AND DEVELOPING SCIENTIFIC KNOWLEDGE

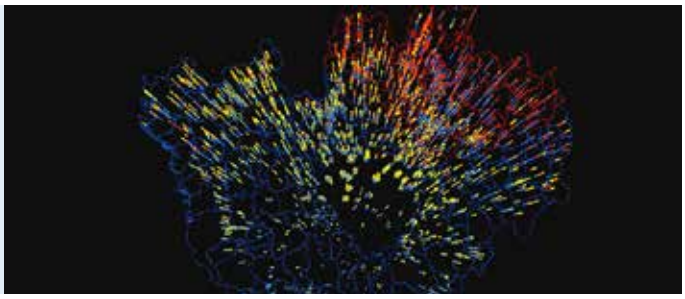
The capacity to absorb first, and contribute then to scientific knowledge and innovation is a matter of organisation and of embodied competences.

In this context, public water operators invest to develop **cutting-edge facilities, recognised laboratories and research centres**, which are forward-looking instruments for the water operator to advance research in water management.

SMAT (Turin, Italy) inaugurated in 2008 its own 2.200 m^2 Research Center whose mission is the development of innovative projects through studies and experiments. Since then, 70 researchers developed more than 120 projects, integrating different skills, expanding the areas and potential of research and contributing to both technological innovation and industrial development. Today, SMAT Research Centre is one of the main Italian references in the field of applied research and control of drinking and waste water.

Alignment between the academic work and the way scientific knowledge is used (and needed) in water operators' daily operations is not automatic. This is why public water operators take concrete actions to create bridges with the academia to foster synergies. Bilateral or multilateral, mutual beneficial agreements are developed with the scientific community, including **through direct partnerships with national research institutes, set-up of scientific committees to assess the operator's work and strategy, availability of the operator's facilities, expertise and experience for the use of researchers, or collaboration with universities.**

Gruppo CAP (Milan, Italy) established a long-term partnership with the University La Sapienza in Rome to develop the knowledge on aquifers and evaluate the state of groundwater resources.



Collaboration with universities goes beyond specific projects to create a sustained relationship, notably through the specialised **Master's degrees in the management of the water cycle**, in cooperation with the water operator, to develop the skills and knowledge, as well as awareness and motivation, of the water leaders of tomorrow.

EMASESA (Seville, Spain) is collaborating with the University of Seville in the development of the Master's in Technology and Management of the Integrate Water Cycle, which connects academic knowledge and practical experience.

The Scottish Government's Hydro Nation Scholar Programme finances PhD scholarships, allowing researchers to enhance capacity in areas of existing research excellence as well as prestigious awards for research excellence through scholarships.

Yearly, EYDAP (Athens, Greece), organises summer employment internships for higher education students (250 in 2019) in its numerous departments, to acquire practical experience.

STEERING INNOVATION THAT BENEFITS ALL

The public water operator's strategy for innovation does not seek innovation in itself and for itself. Rather, the objective is to build a sustainable **culture of science** at all levels and to promote **creative ideas** to seek solutions that valorise the existing heritage, in particular in a world in permanent mutation that is moving towards increased circularity and sustainability.

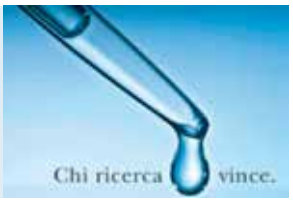
In this framework, emerging **internal management models are transversal, participatory and oriented to efficiently respond to challenges**. Growingly, teams are working across silos, to be able to learn from the diversity of contributions. Further, public water operators are designing positive internal cultures that encourage innovative ideas, with a focus on circularity and capacity-building.

Externally, public operators try to stimulate innovative ideas and solutions that respond to real needs by engaging with the community of local suppliers, in particular SMEs. A typical example of this commitment is the launch of innovation awards or contests for innovative start-ups.

Eau de Paris has, on the hand, set up an internal innovators' network to encourage its 900 employees to take initiative and to foster new ideas and new ways of doing things, and is also drawing from external innovators with its 'Défis Innovation' platform which proposes challenges and allows to co-create new solutions to answer needs.

EMASESA (Seville, Spain), through its open data platform, shares its data and information and allows it to be reused, contributing to objectives of transparency but also local dynamism.

SMAT (Turin, Italy) launched in 2018 its first Water Award for applied research and innovation in the field of integrated water management. The successful applicant has been granted a €20.000 scholarship and a one year access to the facilities of SMAT's Research Centre.



NOT-FOR-PROFIT PEER-TO-PEER LEARNING IN A WIDE SPACE OF COLLABORATION

The public water operator evolves in a **collaborative manner** on national, European, and global scale, by sharing knowledge in a growingly connected space.Willingness to **work with networks of operators who share similar challenges and values driven by the public interest to continuously improve services is growing**. This is evidenced with steadily increasing membership to **Aqua Publica Europea**, where knowledge-sharing is a key element of the association's dynamic platform: members have the opportunity to meet and pool their knowledge and best practices so that they can learn from each other, especially considering that public water operators face similar issues on which joint work is part of efficiency.

Based on the evolution so far, it can be considered that the next years will see **continued exchanges** in the shape of workshops to work together on specific emerging topics, as well as participation in the ***Water Erasmus initiative***, which supports staff-exchange amongst operators as a way to understand how the same mission is carried out elsewhere.

In addition to co-developing knowledge, **benchmarking may also play a part** in the improvement of services. By regularly meeting and comparing performances and ways of doing things, the public water operator will continue to improve its efficiency and capacity.

European Benchmarking Co-operation

Aqua Publica Europea signed a Memorandum of Understanding with *European Benchmarking Cooperation* – the widest and most important benchmarking exercise for the water sector in Europe – with the objective to increase participation of water utilities in trans-national benchmarking practices and to promote capacity improvement within utilities based on exchange and learning from best practices.

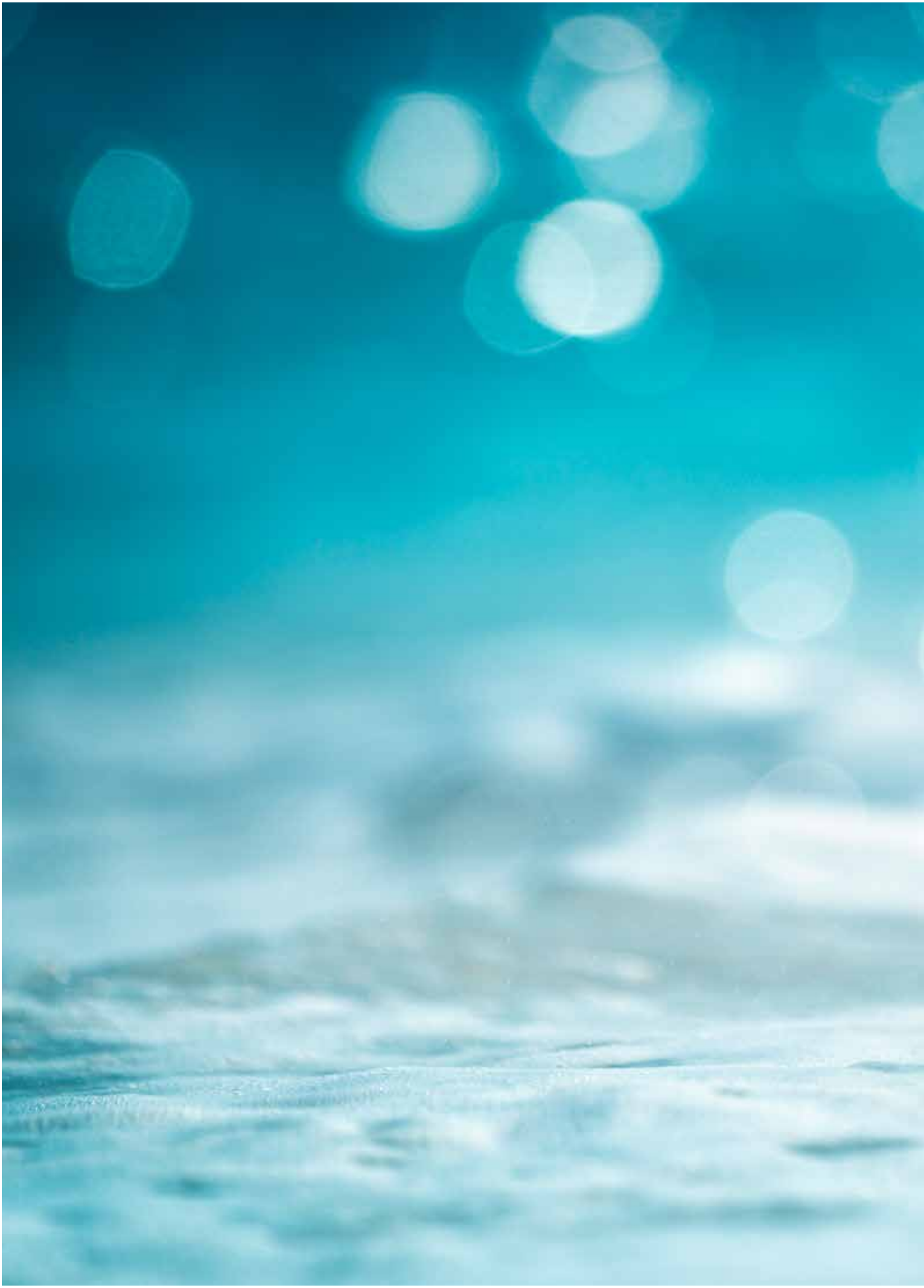
SCIENCE TO CONTRIBUTE TO STRONG AND SUSTAINABLE POLICY

As the on-the-ground expert on water management questions, the **public water operator participates in policy dialogue with local, national and European decision-makers**. The insight allows to better understand the reality of water management that, if coupled with scientific reflection, can contribute to the **construction of robust, objective and evidence-based policy that relies on real needs and meets the common interest**. In parallel, where the public water sector is contributing to dialogue, policy discussions are necessary to secure a framework that allows the innovative solutions and ideas to grow and be developed to the benefit of society as a whole.

CASE STUDY

The role of associations in linking public water operators and decision-makers

Public water operators are committed to working with like-minded peers at different levels to **pool together their knowledge, science and evidence,** and be able to **develop jointly new approaches to common challenges.**
Regional, national or even international **associations of public water operators,** such as **AEOPAS** (Spain), **France Eau Publique, Aquaflanders** (Flanders, Belgium) or **Aquawal** (Wallonia, Belgium) provide **dynamic platforms for exchanges and for production of knowledge,** through a diversity of thematic working committees which allow to collect and analyse experiences and data and develop action plans.
Beyond, they allow to **interface with the scientific community by including researchers and experts** into the discussions to provide insight towards the most relevant and forward-looking conclusions.
Relying on this rich information, such structures have the ability to engage in **informed discussions** and create a link between the **technical and the political levels to support strong decision-making** on key issues involving the water sector.
For example, Aquawal (Wallonia, Belgium) organises the annual 'Assises de l'eau' on key topics; France Eau Publique published its Manifesto for Sustainable Water; AEOPAS worked with researchers on tariffing; AquaFlanders organised 'study days' and proposed solutions in a Memorandum towards 2050.



Conclusion

This publication has shown through concrete examples how, in order to continue fulfilling their core mission of providing safe water for current and future generations, public water operators in Europe are developing new strategies that try to **address current and forthcoming challenges by looking at the complex co-evolution between the society and the environment**.

We have tried to capture this common evolution with the concept of 'ecosystemic enterprise' to emphasise two essential features of the future public water operator: on the one hand, providing drinking water and treating waste water will continue to be an intrinsically **industrial task**, with a growing range of skills and know-how needed to perform it. On the other hand, water operators cannot remain only an 'engineering company', but will have increasingly to expand their areas of activities and external interactions to get even more **embedded in their social fabric**. Such a 360°-approach is somehow required by the sustainability imperative that, by definition, is all-encompassing, as well as by the nature of water resource management that cut across different sectors and institutional spheres.

If, perhaps, this evolution is common to all water operators, publicly-owned utilities have additional responsibilities as regards the role they play for the development of the territory in which they operate. As enterprises that do not respond to private shareholders but only to citizens and elected officials, **public water operators are aware that their activity can generate not only economic, but also 'social and environmental added value' that has to be shared with the society**. Concretely, this means a high sensitivity to the long-term implications of each choice and an intense effort to engage with a wide variety of stakeholders in order to coordinate and develop those joint initiatives and interventions that the complexity of the challenges ahead requires. Whether the mission of contributing to the development of their territory is clearly expressed in the strategies of operators or not, all the examples reported in this document testify that public water operators are aware of having a responsibility that goes beyond just managing pipes, as they are actors that have to contribute concretely, with their ideas and know-how, to a sustainable development that benefits all. If, on the one hand, such additional responsibility derives directly from the model of public ownership, on the other hand this same ownership model is also giving public operators the legitimacy to advance proposals and initiatives that set water in a wider framework.

The members of Aqua Publica are aware of this responsibility; they are also aware that none can consider to be already fit for the future, and that everyone has to continue working to improve their management practices, increase efficiency and find innovative solutions to problems. Learning from others is, in this sense, key and Aqua Publica was created ten years ago with the primary objective to create a context where European public utilities can absorb best practices from peers and can put together resources to find common solutions to shared problems.

At the same time, as ecosystemic enterprises, public utilities are also elements of other ecosystems: **tackling the main challenges ahead requires a collective effort and a series of conditions are necessary for water operators to fulfil their mission effectively**.

First and foremost, **all water stakeholders have the responsibility to increase efforts to raise awareness about the risks that loom on the environment in general, and on water resources in** particular: in our democratic systems, **such awareness is an essential condition to make environment and water protection a priority**. Important commitments taken by the international community recently, but also a renewed attention by society in general towards the future of our planet are, in this sense, encouraging. Regarding water in particular, recent legislative initiatives at the EU level – like the Directive on Single Use Plastics but also the proposal for a new Drinking Water Directive – are to be welcomed, as they recognise the urgency to act, take into consideration the importance of public awareness and perception, and are inspired to a long-term holistic approach to address the problems. In the future we will need more, and even bolder, legislative acts like those mentioned above.

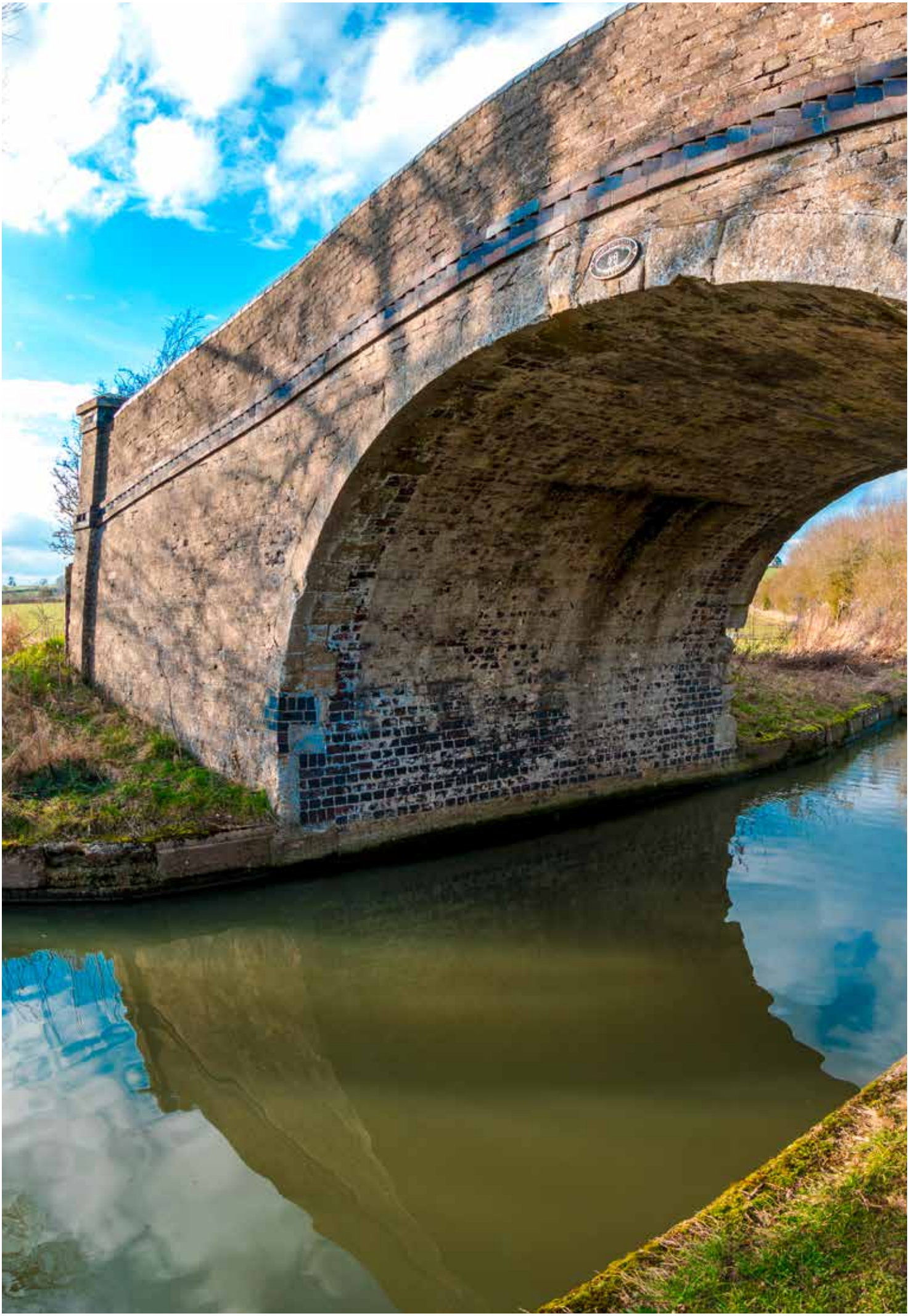
More generally, with regard to future policies, **it is essential that water remains firmly anchored to a robust and ambitious environmental framework**. This means recognising that water is and always will be a *natural* resource and, consequently, water-related issues can only be addressed by placing them in the more general set of measures regulating the relation between the society and the environment in a sustainability perspective. **This also means privileging preventive approaches that try to address problems before they materialise, which is always the most effective way to save both the environment and money**. Trying to tackle water problems in silos or, in any case, resorting only to end-of-pipe solutions is an approach that is fated to fail, precisely because it misses the interconnected dimension of environmental problems. The EU water legislation already adheres at this principle, and will have to do even more so in the future, especially with regard to other sectorial policies where environmental considerations are not yet fully integrated.

Similarly, any **approach aiming to address water issues – in particularly scarcity – via a '*commodification*' of the resource is to be rejected, not for ideological reasons, but simply because this approach is inadequate to deal with a limited common resource like water**, that is essential for life and serves multiple purposes. For instance, it is illusionary to think that potential conflicts between competing water needs (e.g. domestic use and agriculture) can be addressed only with economic tools. **Effective governance frameworks, informed decision-making and participatory processes, however tiring and laborious they may be, are the only way forward to achieve shared and effective solutions**. Consequently, initiatives to foster best practices diffusion and institutional learning through cooperation need to be supported and incentivised. Initiatives such as the *Environmental Governance Assessment* within the EU or, at more international level, the *Water Governance Initiative* of the OECD are important examples in this context that deserve greater support and diffusion.

Pinpointing the limits of possible market-based solutions for water resources management by no means involves neglecting the **importance of economic analysis to support decision-making**. On the contrary, economic analysis will have an increasing role to play for example in helping choosing the most effective investment options in the long term, or to achieve a more equitable distribution of costs among users (e.g. better implementation of the polluter pays principle).

Unfortunately, it is unlikely that economic analysis alone will be enough to solve another relevant challenge affecting the water sector: the growing investment needs. Obviously, water operators have crucial responsibilities in this context: continuous efficiency improvement, sound accounting practices and, more generally, strategies to minimize future financial liabilities – hence our emphasis on preventive approaches – will be essential to meet investment needs without impacting too severely on affordability. Yet, because of the magnitude of the investment needs for the future, we know that this will not be enough either and that, especially in lower-income countries, **continuing economic support by the EU will be needed if we want to keep the ambition of ensuring safe water for all and clean rivers and oceans**. At the same time, increased cooperation among regulators, the financial world (especially public banks), public institutions and operators can certainly contribute to find new, innovative and more equitable solutions to finance the investment need without exacerbating affordability problems.

Finally, we **cannot certainly content ourselves to focus only on the European dimension**. Not only because if access to water is a human right it must be so, of course, for all; but also because in the water domain, like in all the other environmental domains, processes are interconnected at a global scale: we cannot expect to maintain our life standards if the water crisis is not addressed at global level. In this context, access to technologies and finance is certainly important in lower income countries, **but knowledge is just as much crucial, especially as a condition for populations in these countries to develop their own solutions, based on their specific needs, and adapted to the context**. Whilst we are writing these pages, the European Commission is about the relaunch a much awaited support programme to facilitated knowledge and know-how diffusion in the water domain globally. Maybe, one could think this kind of not-for-profit and solidarity-based cooperation is just a drop in the sea but, as we have learnt to know, every drop counts...



OUR MEMBERS


ABBANOA
ABC
Acqua Bene Comune
acquedotto pugliese
aguas de Cádiz
ÁGUAS DE GAIA
Aguas del Huesna
AMAG Reti Idriche
AMAP S.p.A.
Aqua Flanders
aeopas
AIA
AQUABRU
VÖWG
ΕΥΔΑΠ
Barcelona Cicle de l'Aigua SA
Ville de Besançon
BrianzAcque
BUDAPEST WATERWORKS
CASTRAISE DE L'EAU
cile
eau cœur d'Essonne
Régie service public
eau de Paris
Eau du Ponant
eaux de Grenoble Alpes
eaux de Vienne
EMASESA
fep
Grand Annecy
CAP
HAMBURG WASSER
inbw
UISCE EIREANN IRISH WATER
medinaglobal
MM
Noréade
ODYSSI
PADANIA ACQUE S.p.A.
PROMEDIO
régie des eaux
HAGANIS
Regionalni vodovod Crnogorsko primorje
REIMS METROPOLE
The Scottish Government
Strasbourg.eu
Mulhouse
SIG
SAL
Società Acqua Lodigiana srl
smat gruppo
secam
sbge bmwb
La société wallonne des eaux
sydec
SDEA
SIAAP
réseau31
UniAcque
AquaWal
PARIS
VIVAQUA
VIVERACQUA

REFERENCES

1. https://unfccc.int/sites/default/files/english_paris_agreement.pdf
2. https://sustainabledevelopment.un.org/sdgs
3. United Nations General Assembly Resolution 64/292, 28 July 2010, available at: http://www.un.org/es/comun/docs/?symbol=A/RES/64/292&lang=E
4. Right2Water: https://www.right2water.eu/
5. Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the quality of water intended for human consumption (recast), 2017/0332(COD), 1 February 2018, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2017:0753:FIN
6. COUNCIL DIRECTIVE of 21 May 1991 concerning urban waste water treatment (91/271/EEC), available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31991L0271
7. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, available at: https://eur-lex.europa.eu/eli/dir/2000/60/oj
8. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on minimum requirements for water reuse 2018/0169 (COD) available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018PC0337
9. European Environment Agency, European Waters : assessment of status and pressures 2018, July 2018, available at : https://www.eea.europa.eu/publications/state-of-water
10. European Commission, COMMISSION STAFF WORKING DOCUMENT Synopsis Report Stakeholder Consultation Accompanying the document Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the quality of water intended for human consumption (recast), 1 February 2018, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1519213640335&uri=CELEX:52017SC0451
11. Referendum Acqua: http://www.referendumacqua.it/
12. Movement 136: http://www.136.gr
13. Petition Aigua es vida in Barcelona available at: https://www.decidim.barcelona/initiatives/i-1
14. We Own It: https://weownit.org.uk/public-ownership/water
15. Le Temps, Les Zurichois refusent la privatisation partielle de l'eau potable, 10 February 2019, available at : https://www.letemps.ch/suisse/zurichois-refusent-privatisation-partielle-leau-potable
16. Kishimoto, S. and Petitjean, O., Reclaiming Public Services: How cities and citizens are turning back privatisation, June 2017, available at: https://www.tni.org/en/publication/reclaiming-public-services
17. Aqua Publica Europea, Founding Charter, available at : https://www.aquapublica.eu/sites/default/files/page/file/2017-10/founding_charter.pdf
18. Vivaqua, Plan stratégique 2019-2024, 2019, available at : https://www.vivaqua.be/sites/default/files/vivaqua_planstrategique_fr.pdf
19. European Commission, Reflection paper: Towards a Sustainable Europe by 2030, 30 January 2019, available at: https://ec.europa.eu/commission/publications/reflection-paper-towards-sustainable-europe-2030_en
20. IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. Available at: https://archive.ipcc.ch/report/ar5/syr/
21. United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, Online Edition, available at: https://population.un.org/wup/Download/
22. Eurostat, People in the EU - population projections, available at : https://ec.europa.eu/eurostat/statistics-explained/index.php/People_in_the_EU_-_population_projections#An_ageing_society
23. UN-Water Policy Brief, Climate Change and Water, July 2019, available at: https://www.unwater.org/app/uploads/2019/07/UN-Water_Water-and-Climate-Policy-Brief_unedited.pdf
24. United Nations Environment, Tackling global water pollution, available at : https://www.unenvironment.org/explore-topics/water/what-we-do/tackling-global-water-pollution
25. OECD, Diffuse Pollution, Degraded Waters Emerging Policy Solutions , March 2017, available at : http://www.oecd.org/environment/resources/diffuse-pollution-degraded-waters-9789264269064-en.htm
26. OECD, Diffuse Pollution, Degraded Waters Emerging Policy Solutions , March 2017, available at : http://www.oecd.org/environment/resources/diffuse-pollution-degraded-waters-9789264269064-en.htm
27. Aqua Publica Europea, Water and Climate: European Public Water Operators' commitment to water resources protection, 2015, available at : https://www.aquapublica.eu/document/water-and-climate-european-public-water-operators-commitment-water-resources-protection
28. European Commission, Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on minimum requirements for water reuse 2018/0169(COD), 28 May 2018, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018PC0337
29. City of Paris, Eau de Paris réalise les premiers travaux concessionnaires, June 2019, available here : https://tramway.paris.fr/actualites/les-premiers-travaux-realises-par-eau-de-paris/
30. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), available at: https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/
31. European Commission, Buying green! A handbook on green public procurement 3rd Edition, 2016, available at: https://ec.europa.eu/environment/gpp/pdf/Buying-Green-Handbook-3rd-Edition.pdf
32. European Council conclusions, 23-24 October 2014, available at : http://data.consilium.europa.eu/doc/document/ST-169-2014-INIT/en/pdf
33. European Commission, European Pillar of Social Rights, 2017, available at: https://ec.europa.eu/commission/publications/european-pillar-social-rights-booklet_en
34. OECD, Principles on Water Governance, 2015, available at: https://www.oecd.org/governance/oecd-principles-on-water-governance.htm
35. United Nations, 2016 UN World Water Development Report, Water and Jobs, available at: http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/wwdr/2016-water-and-jobs/
36. Article 9 Recovery of costs for water services, Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, available at: https://eur-lex.europa.eu/eli/dir/2000/60/oj
37. European Investment Bank, Water and Waste water management, available at: https://www.eib.org/en/projects/sectors/water-and-waste-water-management/index.htm

TABLE OF EXAMPLES

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Preventing pollution, old and new

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- Eaux de Grenoble – *Resource protection*
- CILE – *Cooperation with farmers*
- Uniacque – *Micro-plastics and antibiotic resistant bacteria*
- **Case study:** *Eau de Paris – Working with farmers to encourage organic farming practices*

Alternative water resources and natural-based solutions to reduce pressures on water bodies

- BCASA – *PLARHAB, technical plan for alternative water resources*
- City of Paris – *'Plan pluie'*
- HAMBURG WASSER – *Rain plan*
- Régie des eaux Montpellier Métropole Méditerrannée – *Raw water*
- Águas de Gaia – Rainwater Utilisation System
- Uniacque – *Water, Caves and Land management*
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- Eau de Paris – *Fondation Agir Contre l'Exclusion*
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- Aqua Publica Europea – *'Untapped: Promoting tap water in Europe' (2019)*
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- Aqua Publica Europea – *'Water Affordability – Public Operators View and Approaches on Tackling Water Poverty' (2016)*

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- Aqua Publica Europea – *Memorandum of Understanding with European Benchmarking Cooperation*

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EUROPEAN ASSOCIATION
OF PUBLIC WATER OPERATORS
10 YEARS OF COLLABORATION
FOR THE GENERAL INTEREST

AQUA PUBLICA EUROPEA

AQUA PUBLICA EUROPEA IS THE EUROPEAN ASSOCIATION OF PUBLIC WATER OPERATORS

In 2019, Aqua Publica Europea, the European Association of Public Water Operators, celebrates its tenth anniversary and with it ten years of working to establish strong collaboration both with the utilities who provide us with indispensable water services and with EU and international institutions to inform decision-making that meets the public interest.

Back in 2009, a handful of operators from Belgium, France, Italy and Switzerland, realised that public utilities had many values in common. They joined their efforts to formalise a shared vision for water management with the creation of Aqua Publica Europea and its founding charter based on the view that water is a common good that needs to be managed for the general interest by efficient public services. Since then, this vision gathered growing support and 65 operators have endorsed it.

With members providing water supply and sanitation services to over 70 million people in Europe, Aqua Publica is now looking at the future. Many challenges and new opportunities will affect water operators in the years to come, from climate change and population growth to technological progress. At the same time, the EU also focuses on strengthening the management of this precious resource through an ongoing wide review of its water policy, including cornerstone pieces such as the Drinking Water Directive or the Water Framework Directive, and tabling new legislation.

In this unique context, collaboration between all actors is crucial to secure sustainable and responsible management of a finite yet essential resource for both ours and future generations. Aqua Publica Europea's role will continue to be to support public water operators' efforts by representing their voice on key issues and provide a platform for peer-to-peer exchanges for continuous improvement, notably with the landmark Water Erasmus initiative.

Aqua Publica Europea (APE) is the European Association of Public Water Operators. It unites publicly owned water and sanitation services and other stakeholders working to promote public water management at both European and international level. APE is an operator-led association that looks for efficient solutions that serve the public rather than corporate interests.

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