

# Knowledge creation and sharing through public–public partnership in the water sector

By Milo Fiasconaro

Managing water resources is not an easy job. Providing safe drinking water to citizens and businesses, and treating wastewater so that it can be returned to the environment without putting health or nature in danger is a complex enterprise that requires a wide range of different skills and knowledge. For a water operator, the continuous development of workforce capacity – from the chemist to the plumber, from the IT technician to the geologist – is therefore crucial in order to provide an ever-improving service. Further, socio-economic transformation, climate change and legislative evolution are creating new challenges, requiring that water operators constantly search – both internally and externally – for potential new solutions or approaches.

More generally, the absorption, use, reproduction and generation of knowledge – be it embodied in workers, machines or scientific texts – represents a fundamental dimension of the mission of a water operator. While this is true for both public and private operators, the ownership model can significantly affect the way an operator ‘organises’ knowledge management. Two main differences can be identified.

The first difference has to do with the diverse ‘spatial nature’ of public and private operators. A public operator is necessarily territorially bound to the public authority or consortium of public authorities conferring on it the responsibility to manage local water resources (in certain contexts,

the possibility for a public operator to provide services outside the geographical perimeter determined by the mandating public authority(ies) is explicitly forbidden by law). On the contrary, a private operator, particularly a multinational, will tend to be organised in a networked, trans-territorial fashion, connecting and integrating different plants and facilities across the world. As a result, a multinational company can quickly mobilise, disseminate and transfer new knowledge in its network. In other words, once an effective solution to a shared problem is identified in a private water plant, or once a process improvement is developed at a decentralised research facility or at headquarters, such knowledge can be easily, effectively and cheaply transmitted to the company's plants and management centres worldwide. In addition, the relative economic cost of generating new knowledge will tend to be lower for private than for public operators due to economies of scale. In short, knowledge generation for a private operator will likely be easier and cheaper than for a public operator, thanks to its size and transnational nature.

The second difference concerns the incentives or rationales for investing in knowledge generation. The main drive for such investments from both public and private operators is the need to find solutions to concrete problems. However, a private operator can also decide to invest in knowledge creation (through internal research and development, R&D, or external acquisition) as a competitive strategy: developing new technological solutions that, once patented, can create a competitive advantage over competitors, thus increasing profits. Obviously, such investments can also cause economic losses if they do not yield the expected results – a normal entrepreneurial risk for a profit-making entity. For public operators, selling technologies or patents is not normally part of their mission or mandate so they cannot recover costs involved in R&D activities in that way. In most cases public operators can only recover costs through the tariffs they charge on domestic or business users, which means they have to be extremely careful about the

way they use tariff-generated resources to finance uncertain explorative efforts; otherwise they could be sanctioned, for example by a Court of Auditors, for misuse of public resources.

These two 'structural' differences between the public and private models of water management help explain certain intrinsic limitations, or asymmetries, that public operators face when it comes to knowledge generation and management. The problem becomes even more acute in the case of newly created public services, especially if they are the result of de-privatisation processes. For reasons explained elsewhere in this book (see Chapter 11 for instance), one of the most daunting difficulties public authorities face when they decide to bring water management back into public hands is precisely the definition, sourcing and organisation of the knowledge needed to manage the service. The range of concrete knowledge-related issues is enormous, like understanding the skills needed to manage the service (and then recruiting accordingly), or gaining control or buying the software needed for user databases (or any other soft or hard assets needed). For all these reasons, public operators, and the public authorities in charge of their organisation, have to devise modalities for knowledge generation and use that are different from their private counterparts.

## **Public-public cooperation as an alternative to market-based solutions**

Public operators have different options to compensate some of the asymmetries in knowledge generation described above, and to improve their capacity to address current and future challenges in water resources management. Some options are more 'traditional' because they have been in the public water sector for quite some time. We can mention the possibility for water operators to purchase innovative solutions from the market through public procurement, to rely on

consulting companies for the provision of specialised services, or to recruit and train specialised staff.

A promising alternative is the growing number of public operators deciding to pursue public-public cooperation as another strategy for knowledge creation. Public-public cooperation can offer some advantages compared to traditional market-based solutions. These advantages lie in the ‘public nature’ of the organisations involved, allowing actors to pursue general interest objectives that can go beyond the specific and contingent interests of the parties involved in the partnership. In this chapter, we illustrate how public-public partnerships in the water sector can advance public service objectives by presenting two common forms: collaboration between water operators and academic institutions, and collaboration among public water operators within national and international networks.

## Partnerships between water operators and academic institutions

The first example of public-public partnership pertaining to knowledge management in the water sector consists in collaborating with research entities, particularly universities. Objectives can vary but a typical goal is to increase knowledge on a specific issue or solve a specific problem. In Italy, concrete examples include: Gruppo CAP (water operator in the province of Milan), which has signed a partnership agreement with La Sapienza University (Rome) for an in-depth analysis of geological morphology of the aquifer in the Milan area<sup>1</sup>; or Uniacque (water operator of Bergamo), which has signed a research contract with the Italian National Research Council for a study on pollution of surface water from micro-plastics and antibiotic-resistant bacteria.<sup>2</sup>

Another common objective behind water operator–university collaboration is ensuring the promotion of academic investigation on water

resources management and training of young professionals. Examples in this domain include the joint financing by the Scottish Government and Scottish Water of research awards and a scholarship programme for PhD students focusing their research on water issues,<sup>3</sup> or the co-financing by EMASESA (Seville water operator) of a Master's in Technology and Management of the Integrated Water Cycle at a local university.<sup>4</sup>

Finally, another objective can be ensuring that students are aware of career opportunities with water operators and in the water sector more generally. Indeed, a shortage of qualified workers represents one of the major challenges of the water sector, as pointed out in a UN-Water report.<sup>5</sup> An example in this context comes from Eydap (Athens' water operator), which has created summer time dedicated positions for higher education students (250 in 2019) in its numerous departments.

What is common – and important – in all of these examples is that the knowledge generated through collaboration will remain in the public domain or contribute to the general interest. More precisely, the knowledge generated in the partnership will not be captured in a proprietary form (e.g. a patent, a licensing contract, etc.). On the contrary, such knowledge will be used and shared by the water operator to address or better understand a specific problem; for its part, the public academic entity can publish the knowledge generated – if scientifically relevant – through publications, thus contributing to the general advancement of knowledge in society. In short, launching a knowledge partnership between public entities means that the result of joint work will not serve to generate profits but will be accessible to all, thus contributing to the well-being of society as a whole.

## Networks of public operators

As a not-for-profit entity, a public water operator can share knowledge freely through a second type of public-public partnership: participation in

national and international networks of professionals and water experts. Over the last 15 years, there have been a growing number of networks that bring together only publicly owned operators, in comparison to traditional professional networks that used to encompass the private sector as well. In the European context, some of these networks have a national scope: this is the case of France Eau Publique (Public Water France), Asociación Española de Operadores Públicos de Abastecimiento y Saneamiento (Spanish Association of Public Water and Sanitation Operators), or Allianz der öffentlichen Wasserwirtschaft (Alliance of Public Water Companies, Germany). They can also have an international scope, as is the case of Aqua Publica Europea (European Association of Public Water and Sanitation Operators).

All of these networks were explicitly created to pursue two main objectives. The first objective is to enable public operators to develop their own policy proposals for water resources management given they may have different views and ideas to put forward than private operators. The choice of ownership model is not just a matter of dialectic confrontation on a political level (e.g. whether one thinks an essential service like water should be a profit-making business), but it also has concrete implications in terms of how water resources are – or should be – managed from source to tap. The ownership model will affect the way technological or organisational options are selected, or decisions taken over investments, or even how potential conflicts between alternative water uses will be arbitrated. Consequently, public operators need their own space to elaborate and channel their alternative proposals.

If such a ‘representation need’ is often the main reason behind the creation of these networks, having a dedicated platform where to share knowledge, expertise and solutions on concrete management issues certainly represents the other main drive for the creation of ‘public only’ associations. The greater homogeneity of the membership can facilitate the development of trust and the circulation of information among members:

when trying to address a specific problem, an operator can be confident that commercial interests do not motivate solutions suggested by other members. The idea that the non-profit nature of relations can facilitate knowledge-sharing and capacity-development initiatives among peers was also behind the creation of the Global Water Operators' Partnership Alliance (GWOPA), under the umbrella of UN-Habitat. Although GWOPA is not an association like those mentioned above, it was launched more than 10 years ago by a UN Secretary General Advisory Board on similar grounds, namely that water resources management issues are partly a 'capacity problem' and that peer-to-peer learning on a solidarity basis can be a powerful tool to disseminate best practices and know-how.

More generally, the creation of networks of public operators can respond to knowledge-sharing needs, based on two rationales. The first one is practical: the assumption is that in a national or transnational network of operators there already exist several solutions to common problems, which can easily be shared precisely because there is no commercial competition among members. In this sense, networks of public operators can compensate the 'geographical asymmetry' mentioned above by becoming catalysers of information and capacities that are not bound by competitive concerns and can consequently be shared freely.

The second rationale can be more value-laden: if water is a common good and water provision, a natural monopoly, and if all economic resources generated by the water management cycle should be reinvested in the water cycle itself, then the knowledge needed to manage and address water management problems should also be a common good. Importantly, public operators would have a duty to share this knowledge.

Public water operators' duty to help other operators is enshrined in Aqua Publica Europea's Founding Charter, for instance. Aqua Publica Europea is a knowledge-sharing platform that performs this mission in different ways. For example, it routinely organises technical meetings to address

specific issues by relying on the internal expertise of members; it supports the activity of internal working groups led by staff from members who coordinate in-depth exchange of data or information on more complex matters; it supports the creation among members of consortia to bid for international research grants. The most recent initiative launched by Aqua Publica Europea in this domain is Water Erasmus,<sup>6</sup> a programme that promotes short-term staff exchanges among members. Water Erasmus has been designed to strengthen operators' internal capacity by responding to different needs: promoting mutual knowledge of different management models; facilitating the mobilisation of knowledge and know-how that is embodied in people; making the workplace more attractive especially for young professionals and helping them to build their own international network. Since its launch in 2017, several operators have participated in the programme:

- Scottish Water's staff visited Eau de Paris (Paris' water operator) to learn about their strategy on public drinking water fountains and Eau de Paris reciprocated the visit to study Scottish Water's remote control technologies;
- Gruppo CAP (Milan) visited Hamburg Wasser to learn more from the technologies and strategies on wastewater treatment, and BCASA (Barcelona's sewage company) visited CAP to study their internal performance assessment methodology;
- SWDE (Wallonia, Belgium) and SMAT (Turin, Italy) exchanged on their innovation strategies.



*Photo by Gruppo CAP (Milan, Italy): the team from Gruppo CAP visited HAMBURG WASSER (Germany) with the Water Erasmus programme*

## Public policies on strengthening knowledge in the public water sector

To conclude, it is important to stress that, in the water sector, the scientific and technological content of routine operations has been growing. Due to some structural differences in terms of public operators' organisation and mission, it is more challenging for them to develop and integrate such content than for their private counterparts. Public–public partnerships – by activating interfaces with the academic world or by collaborating in international networks – can represent an effective response for public operators to compensate for the lack of transnational economies of scale that multinational companies can benefit from. National and transnational associations of public operators pursue the mission of knowledge-sharing and capacity development autonomously, by relying exclusively on resources coming from members. However, this effort will not be enough to address a great challenge of our time: strengthening the capacity of the public sector more broadly. Governments and public powers have a crucial responsibility in facilitating and incentivising this kind of capacity-development effort. This is true for the water sector and for all other public administration sectors. Mariana Mazzucato<sup>7</sup> and several other scholars have shown in recent years that a strong, well-staffed and skilled public sector is an essential condition for fostering the well-being of societies, including the development of a vibrant private sector.

### ABOUT THE AUTHOR



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## Endnotes

- 1 See Gruppo CAP (n.d.) CAP e la Ricerca Universitaria. <http://www.gruppocap.it/attivita/ricerca-e-sviluppo/cap-e-la-ricerca-universitaria> (retrieved 23 January 2020).
- 2 See Uniacque (n.d.) Iniziative per l'ambiente. <http://www.uniacqua.bg.it/cosa-facciamo/comunicazione/iniziative-per-lambiente/index.html> (retrieved 23 January 2020).
- 3 See Scottish Water (n.d.) The Hydro Nation Scholarship Programme. <https://www.hydronation-scholars.scot/apply> (retrieved 23 January 2020).
- 4 See EMASESA (n.d.) Cátedra del Agua. <http://catedra.us.es/catedraemasesa/> (retrieved 23 January 2020).
- 5 UNESCO (2016) The United Nations World Water Development Report 2016 – Water and Jobs. Paris: UNESCO.
- 6 See Aqua Publica Europea (n.d.) Water Erasmus. <http://www.aquapublica.eu/ape/exchange#water-erasmus> (retrieved 23 January 2020).
- 7 Mazzucato, M. (2017) *The Entrepreneurial State*. London: Penguin.