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The evolution of water governance in France from the 1960s: disputes as major drivers for radical changes within a consensual framework

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Introduction

There is now a consensus about the fact that water management not only requires the right techniques and sufficient finance but also above all an ‘enabling’ governance system (e.g., Gurría, 2009). The Organisation for Economic Co-operation and Development (OECD) has taken a significant step towards such recognition by adopting ‘governance principles’ designed to guide governments in their quest to improve their water-governance framework. These principles are built on best practices and have been prepared by the Water Governance Initiative, which was cofounded by ASTEE¹ and led by the OECD. Their goal is for ‘effective, efficient and inclusive water policies in a shared responsibility with the broader range of stakeholders’.² However, these guidelines say little about how governance systems adjust with time to changing environments, challenges and societal expectations.

France’s water-governance system may be seen as a stable and even dormant framework built upon two pillars: integrated water resource management at river basin scale (introduced by the first water law in 1964) and the public–private partnership model of local water and sanitation services which extended from urban to rural areas during the course of the 1960s/70s. Although this framework remains consensual, the objectives of water policies and the tools for their implementation constantly evolve. We still need to understand precisely what are the drivers of change and what directions this governance system is taking.

The purpose of this paper is threefold. First, it analyses how water governance has developed in France. We will detail the three characteristics of such change: disputes as one of the change drivers, resulting in more incremental than radical evolutions due to a form of stable consensus concerning the water-governance framework. Second, it provides an overview of recent changes introduced in France’s water-governance system about which surprisingly little appears in the literature (Barbier, 2015; Barraqué & Laigneau, 2017). Third, and more broadly, it sets out to discuss the water-governance cycle suggested by the OECD. Water governance is understood here as including both water resource management and water service management.

The paper is based upon a literature review, and the various professional experiences of the authors within the water sector, as water professionals, researchers and teachers involved in policy-making processes, members of the OECD governance initiative, experts in water utility management and water governance. Therefore, it provides an in-depth understanding of the French context, although inevitably carrying with it a very French and expert point of view.

This paper is structured as follows. The first and second sections analyse the evolution of the French water-governance system referring to the OECD governance principles, which are divided into water services governance and water resource governance. The principles are used as a frame in this analysis and help to identify how far these principles are followed, how they are implemented and which are guiding current reforms. The third section details change processes to highlight the three characteristics of the change dynamic: disputes and incremental change within a consensual framework. The final section discusses the OECD water-cycle framework and puts forward perspectives.

The evolution of France's water services governance system³

Water governance is closely connected to governance in the public sphere. Prerequisites on French governance are set out in Box 1. While water and sanitation services' governance relies on local authorities, water resource governance required setting up specific and innovative structures.

The framework

France has a unique model of water and sanitation service governance (Roche, Guerber, Nicol, & Simoni, 2016) deriving from its history (Box 2). It is based on five major elements: (1) duality as both public and commercial services; (2) local management (decentralization); (3) public management with private participation; (4) fragmented state regulation; and (5) funding by users. The main stakeholders are set out in Figure 1.

- Water and sanitation services are by law recognized as both public and commercial services. Being public, they must comply with French public service core principles: continuity of service (continuous service delivery), and equality of treatment of users and mutability (infrastructures and service delivery to comply

Box 1. French state and local authorities governance frame.

France has a long history of the centralization of power. However, since the French Revolution of the late 18th century, governance has been divided into two distinct spheres: state and local authorities. There are three types of local authorities: municipalities, départements and regions. One peculiarity of France is the vast number of municipalities – more than 36,000. The country is divided into 101 départements and regions whose numbers recently decreased from 27 (22 in metropolitan France – MF) to 18 (12 in MF). While municipalities and départements were established with the Revolution, regions governed by locally elected representatives were only created in 1982, with the first decentralization statute. The state used to take part in decisions taken by municipalities, but this law restricted its role to controlling legal compliance and assisting and contributing to finance local public actions. The state consists of ministries and public bodies at the national level, with local representations. Heads of ministries belong to the government. Local authorities are headed by elected representatives. Financially, local authorities levy local taxes and receive grants from the central state.

Box 2. Origins of the French model of water and sanitation services' management.

In France, as in many other industrialized countries, drinking water and sanitation network infrastructures developed in the second half of the 19th century. The awareness that these infrastructures were crucial to public health came soon after the plague epidemics that afflicted Europe (Paris in 1833 and 1849) and scientific pioneering discoveries (Louis Pasteur, Florence Nightingale, Robert Koch etc.). Municipalities had been in charge of providing water and sanitation services since the French Revolution, but always lacked the funding to implant their allocated role (Pezon, 1999). To encourage infrastructure development, the government carried out a large urbanization refurbishment programme in Paris whereby private entrepreneurs invested in water and sanitation networks (Crespi-Reghizzi, 2014). In addition, two companies were founded: the Compagnie Générale des Eaux in 1843 (later becoming VEOLIA eau) and the Société Lyonnaise des Eaux et de l'Eclairage in 1867 (subsequently becoming Suez), which took over the development of services in a number of major cities such as Lyon and Bordeaux. From there, two models of service management coexisted in France: concession and public management ('régie'). The legal frameworks to clarify the roles and duties of the state, municipalities, private companies and users (tariff policy, controls, investment) were then set out at various stages during the course of the 20th century.

with laws,⁴ norms and available technologies at any time). Being commercial, they are entitled to sell services to users.

- Water and sanitation services' management is indeed local since the 36,000 French municipalities are responsible for water and sanitation services. This means they fund and own the infrastructures and are responsible for service delivery, for which they may contract with private or public companies.
- Municipalities may contract with private (or public) companies for operation, maintenance and commercial services ('délégation de service public') up to infrastructure investment (concession model) (Figure 2). Delegation is in France more widespread than anywhere else in the world (Clark & Mondello, 1999). Around 60% of the French population drinks tap water from services operated by a private operator (ONEMA, 2016). This model of delegation developed during the post-Second World War rebuilding of France, with rapid infrastructure development and little capacity to handle them in many very small municipalities. The state played a major role in developing services and rolling out the delegation model.
- Even if municipalities are in the front line to handle water and sanitation utilities, the state has nevertheless always played a key role in two respects: sector development and regulation (including policy-making). While its role in sector development may be considered as transitory (see later developments), the state is the

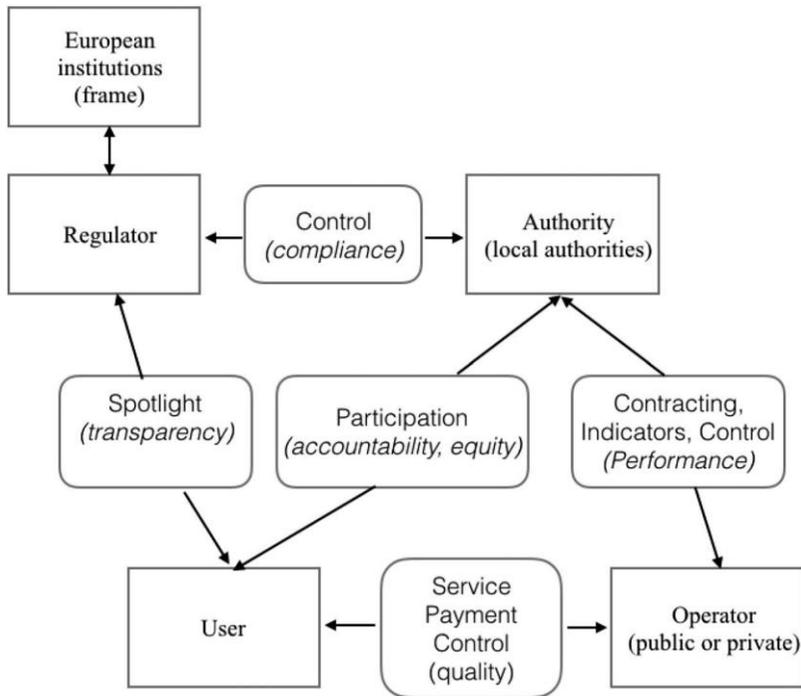


Figure 1. Stakeholders in France's water service governance.
 Source: Adapted from Roche, Colas-Berlour, Vial, and Tandonnet (2016).

Public management	<ul style="list-style-type: none"> - direct management by local authority's governance structure - specific budget (funded by water bills) - headed by a civil servant - employment contracts under private law
Public local enterprise	<ul style="list-style-type: none"> - financial autonomy - legal existence - headed by a civil servant accountable to local authority - employees under private law - under contract without bidding and no deadline - may have private shareholders
Private enterprise	<ul style="list-style-type: none"> - majority of private shareholders - legal existence - head and employees under private law - under contract through bidding and time limit

Figure 2. Model of water services' management in France.

regulator. Regulation is not implemented by any formal regulatory agency as in England and Wales with Ofwat, the Water Services Regulation Authority. Regulation is overseen by a number of state services, making state regulation fragmented (Canneva, 2012). Central and local state services ensure the respect of health, environmental, accounting and competition rules.

- Users contribute to water and sanitation services management by funding them through the paying of water bills. Water bills fund water and sanitation services management (investment, operations and maintenance (O&M), and commercial services), and water agencies through user fees. In France, this financing model is known as 'water pays for water'. Local authorities in charge of water and sanitation services manage a specific budget in which income has to come from the activity of the service (water sales) and expenses have to finance either operation, maintenance and investment dedicated to the service. Water and sanitation services are entitled to resort to bank loans and public funds to finance investments. Social tariffs to ease access to poorer households have been tried in various cities (Lille, Nantes, Grenoble, Paris).

In 2013, 61% of the French population was supplied with drinking water by a private enterprise under contract with a local authority. This rate is 41% for sanitation services. Three main private companies share 99% of the market shares of concession contracts in France: Veolia, Suez and Saur. A total of 1% of shares is left to smaller independent companies. This water services governance system is characterized by the main responsibilities borne by local authorities, the strong implication of private companies in services' management and the existence of an ancient oligopoly. It is weakened by the large number of small local authorities in charge of water services. A total of 56% of water utilities serve 4% of the population; 10% of water utilities serve more than 50,000 inhabitants each (ONEMA, 2016). These small authorities are typically rural, low staffed, which make them unattractive to private operators, with low investment capacities. The renewable rate of the water network is of 0.58% (ONEMA, 2016), which is low. The responsibility for renewing networks is shared between the local authorities and the public or private operators.

This governance system for water and sanitation services remained relatively stable over the last 50 years. Changes were, however, introduced to improve performance for improved trust and engagement (principle 9 on integrity and transparency of practices, principle 10 on user involvement in decision-making and public information) and effectiveness (principle 4 on strengthening the capacity of responsible authorities).

User involvement, strengthening of local authorities and the new role of the state limited to regulation

During the course of the last half century, the legal framework organizing water and sanitation utility governance has evolved three times: during the mid-1990s with the Sapin law (1993), the Barnier and Mazaud laws (1995), the mid-2000s with the Water Act (2006) and the 2007 state Reform ('Réforme Générale des Politiques Publiques'), and then the mid-2010s with the third decentralization laws (NOTRe 2015). The 1990s and 2000s laws tackled

the issue of trust and engagement, while the 2007 state Reform and the 2010 decentralization law focused on the capacity of responsible authorities and the role of the state.

In the 1990s three major laws were passed, designed to boost trust and engagement in the sector by imposing specific competition rules, ensuring availability of information to citizens and accountability from private operators. In 1993, the Sapin law introduced competition rules specific to delegation contracts for public services such as water and sanitation. In 1995, the Barnier law obliged water and sanitation services to produce annual reports to inform citizens about key facts and figures. The Mazaud law then obliged private companies to hand over an annual report on their management to responsible authorities. Later, in 2002, a law on local democracy obliged responsible authorities serving more than 10,000 people to involve users in service governance. User committees henceforth had to be consulted over key decisions such as moving from delegated to fully public operations. These laws introduced notions of transparency and integrity, trust and engagement into the sector.

Another set of laws tackled the capacity of responsible authorities to manage water and sanitation services, closely linked to the role of the state. As mentioned previously, since the 1950s the role of the state has gone beyond mere regulation since it contributed to developing and organizing the sector. 'Deconcentrated' state services, known as 'public engineering services', played a major role in governance. Composed of state engineers under the responsibility of either the Ministry of Agriculture or the Ministry of Public Works, these services were organized at the scale of départements. This local grounding offered state engineers in public engineering services an understanding of specific local issues, and integration in the web of relationships between local authorities, their contracting companies and any local actors. Public engineering services administered funds for infrastructure development, assisted responsible authorities by designing and managing infrastructure development projects and, subsequently, assisting them in contracting with the private sector to manage new infrastructures. They also worked on the design of new services involving the cooperation between municipalities, in the case of shared water resources, for instance.

This governance model brought with it two major issues. First, water and sanitation services remained too small in scope. In 2013, 56% of the 13,530 French water services served fewer than 1000 people, and only 2% served more than 50,000 people (ONEMA, 2016). Small services rely on external consultancies because they clearly cannot hire permanent expert staff. This lack of autonomy is clearly an obstacle to building the consistent long-term development strategy required for sound management. In addition, a large number of water and sanitation services (34,714 in 2013; ONEMA, 2016) triggers a significant disparity of water tariffs up and down the country, and increases the complexity and cost of regulation. The mere building of a national information system, imposed by the water law in 2006, came across as a most challenging task. The decentralization law of 2015, known as the 'NOTRe' law for 'Nouvelle Organisation Territoriale de la République' (New Territorial Organization of the Republic), addressed the main obstacle to strengthening local authorities: their sheer number and size. The remunicipalization of Parisian water services reminded everyone that local authorities are the key actors in water and sanitation service management (Valdovinos, 2012). This law specified that the responsibility of water and sanitation services should be transferred to groupings of municipalities by 2017. This was part of an earlier rationalization movement taking place in other European countries such as in England and Wales with the 1973 Water

Act and in Italy with the 1994 Galli law (Barraqué, Isnard, Barbier, & Canneva, 2011). This rationalization involves moving from local communes to larger local authorities to take advantage of economies of scale, but also for the better interconnectedness of water networks and improved safety in drinking water provision (Barbier, 2015).

Another issue confronting this management model is the role of the state. As already explained, since the 1960s the state has played a crucial role in organizing the sector with its public engineering services. In the 2000s, this public consultancy service started to be seen as competing with the private consultancy sector. It was also perceived as preventing municipalities from feeling the need to merge to strengthen capacity. In other words, it was not helping to solve the problem of too many and too small utilities. Eventually, the reform of the French state led, in 2008, to the decision to dispense with this activity. The state focused instead on its regulatory role (Barone, Dedieu, & Guérin-Schneider, 2016).

Recent detailed proposals have been made to use the opportunity offered by the process of the concentration of public authorities to reinforce central regulation, in a movement referred to by the authors as 'from moonlight to sunshine regulation' (Roche, Guerber, et al., 2016). The French national water committee ('Comité national de l'eau') and the French government decided at the end of 2016 to implement these proposals progressively, taking into account efforts that municipalities will have to dedicate to rebuilding their services at new scales.

Change in water resource governance: towards a more inclusive policy

A governance framework relying on water policy principles designed to attain consensus

France has a unique water resource governance system based on an integrated water management system. It derives from an extensive but historic regulatory framework combining bottom-up and top-down processes. Three water policy principles apply (Levraut et al., 2013). The first states that 'water is part of the common heritage of the nation'. Water resource management should guarantee adequate water quality and quantity for both human use and environment preservation. The second principle stipulates that 'water use belongs to all' and that 'each individual has the right to access drinking water at an acceptable cost'. The third principle stems from the application of the polluter-pays principle. These three principles are the cornerstones of the current water policy consensual framework combining: (1) an autonomous water policy where water agencies play a central role; (2) a decentralized water resource management at basin scale; (3) state regulation; and (4) participatory processes for conciliation between users and engaging civil society.

The following section considers the role and evolution of this system.

Framework development: water management at basin scale, water user engagement, strengthening of local authorities and the new role for the state

France's water-governance framework celebrated its 50th birthday in 2016. From an external perspective it might well look surprisingly stable. Yet, water governance has

experienced significant changes regarding both the regulatory framework and the processes involved. The four major legislative steps that shaped current water governance are as follows:

- In 1964, the first Water Act set up an original institutional and financial system for integrated water resource management at basin scale.
- In 1992, the second Water Act went further regarding innovative governance practices at an appropriate management scale (smaller catchments) and reinforced a multi-stakeholder approach.
- In 2006, the third Water Act integrated principles from the 2000 European Water Framework Directive (WFD). It strengthened water management at basin scale, enhanced monitoring and evaluation as well as trust and engagement. The WFD also induced a paradigm shift towards result-oriented management.
- More recently, the 2014 and 2015 decentralization laws and the 2016 biodiversity law strengthened the role of local authorities with jurisdiction over water resource management and flood prevention, and created new tools to link water issues more effectively to other environmental concerns.

1964 Water Act: the establishment of water agencies

The 1964 Water Act set up the foundations of the current water-governance system. The context was a period of high economic growth, a planned economy and a centralized political system with the state as the sole policy-maker. The law decentralized water governance (Richard, Bouleau, & Barone, 2010). It introduced the concept of river basin management, set up six water agencies and their basin committees. It induced a radical paradigm shift from the management of water integrated in fragmented sectorial policies (irrigation, hydroelectricity, sanitation etc.) towards the management of water at the scale of a hydrographic territory. It laid the basis of environmental regulation in France in a context of rapid economic growth involving the development of highly polluting industries and intensive urbanization of natural areas such as coastal areas (Drobenko & Fromageau, 2015). This law may rightly be considered as the first step in France towards recognizing the importance of environmental issues (Bouleau, 2007).

The issue of water management in France at that time was not the availability of the resource but its quality and conflicts between users (Box 3). This new model of territorial management of water was inspired by financing mechanisms set up on the Rhine river basin in Germany (Barraqué & Laigneau, 2017). Relying on a physical reality (the basin), water agencies blurred administrative boundaries and brought together neighbouring areas and users. They are in charge of financing and planning water policy within the area they

Box 3. Key figures on the demographics and water resources in France.

Population: 1960, 46 million; 2013, 66 million; 2017, nearly 67 million at 106 inhabitant/km² (INSEE; <https://www.insee.fr/fr/statistiques/1892086?sommaire=1912926>)

Annual growth rate: 1960, 1.2%; 2013, 0.5%

Water availability: 191 billion m³/year; needs in 2012, around 17% (30 billion m³/year) (Table 1)

Table 1. Volumes of water withdrawn per use in France (m³/year) (SOeS, 2015).

Water uses	Water abstraction/withdrawal, 2012	
	billion m ³ /year	%
Drinking	5.5	18.3
Industry	2.9	9.5
Energy	18.7	62.5
Irrigation	2.9	9.7

Source: SOeS, 2015.

serve. They collect fees from water users. They reallocate funds through subsidies and loans to support studies and infrastructure projects designed to improve water quality and availability. From the 1970s onwards, many local water authorities emerged as a result of bottom-up processes. They were specifically set up by groupings of local authorities to take over water resource management issues at river or catchment scale. As previously mentioned, these innovative catchment or river management authorities cross the traditional administrative public demarcation consisting of the state and local authorities. They are the key stakeholders of the French water resource governance system.

Hence, contracting authorities ('maîtres d'ouvrage') are both local authorities, be it at local, district or regional scales, and local water authorities, at catchment or river scales.

Water agencies collect around €2 billion per year (Roche, Guerber, et al., 2016). Around 85% of this sum comes from domestic water users. The budgeted amount for the period 2013–18 is €13.3 billion for preservation (Agences de l'Eau, 2017).

The model of a water agency was meant to implement the 2015 polluter pays principle for the first time.³ It also set up cross-subsidies and solidarity mechanisms at basin scale between urban and rural areas. Basin committees (so-called 'water parliaments') gather representatives from local authorities, water users and the state. The committees act as forums for negotiation, consultation, guidance and decision-making on water at the territorial level of the catchment, enabling a bringing together of different stakeholders with sometimes competing interests. They are in charge of water-use allocation and defining the policy of their water agency. Regarding planning, water agencies act under the joint responsibilities of the state representative and of the basin committee (Nicolazo, 1993).

1992 Water Act: river basin planning tools, collective decision-making ('concertation')

The second important step towards a more inclusive water policy in France was the 1992 water law. Adopted in a context of decentralization and modernization of state services, it reflects a still-growing awareness of environmental issues, in response to serious accidents or major pollution (e.g., Chernobyl and Sandoz, both 1986). This water law defined water as a common heritage of the nation. It introduced new tools for a planned and participatory water management at basin scale. It allowed new forms of public action through local participatory mechanisms. Processes of preparing planning tools such as master plans (SDAGE, at the scale of the river basin) or plans for water management (SAGE, at the scale of a smaller catchment area) were opened to representatives of water users and civil society, through basin committees and local water commissions (catchment areas). At the same time, the act created conditions for greater

control of the state. Both planning tools (SDAGE and SAGE) and following activities and operations must still seek approval from the state (Peyrou & Roche, 2006; Richard & Rieu, 2009). At catchment scale, SAGEs are managed by water authorities.

2006 Water Act: new norms from the 2000 European Water Framework Directive
The building of a comprehensive European legislative framework was clearly structured by models promoted at international level such as integrated water resources management (IWRM) (Box 4 has a short history of the European Union policy on water). Although this concept emerged in the 1970s, awareness grew among European institutions in the 1990s (Molle, 2012). The 2000 European WFD resulted from the recognition of the fragmented nature of European water policy, the need to account jointly for the different components of water (quantity, quality, ecology) and for the diversity of water uses (including the environment *per se*) (Kallis & Butler, 2001). Designed to enhance the effectiveness of water policy, it builds on four key components: ecosystem-based objectives (ultimate objective of a good overall quality of all waters) combined with economic requirements; the planning of water management at river basin scale; cost recovery for water services; and the participation of all stakeholders including civil society as a cornerstone for building a water democracy. According to Salles (2009), participation sets out to build mutual responsibilities between actors. At least it makes issues more transparent whilst at the same time making actors accountable for the environmental results achieved. It introduced a shift towards result-oriented management, with water quality targets to be met by 2015, 2021 or, ultimately, 2027.

With the 2006 Water Act, the European WFD was transposed into French law. It created ONEMA,⁶ a central office for freshwaters, to enhance links between water cycle and water service management. It also sought to improve consistency between European guidelines and decentralized implementation at basin scale (Levraut et al., 2013). ONEMA's creation looks like a re-centralization as regards the monitoring and surveillance of water quality, which is a major issue in the context of achieving good status or good potential as advocated by the WFD (Richard et al., 2010).

The enforcement of the European WFD was not such an administrative issue in France regarding the governance framework, since water agencies already had jurisdiction over major watersheds. The WFD in fact strengthened the legitimacy of existing institutions. It also contributed to new forms of governance and collective actions across different territorial scales and decision-making levels. However, processes of setting and reaching objectives of water quality ('good status') and implementing cost-recovery policy have been more challenging for France as they required adjustments (Richard et al., 2010; Roche, 2002). The WFD enhanced monitoring and evaluation. The 'good status' indicators have become the main criteria for assessing the soundness and effectiveness of water management in a given river basin. It gave a new impulse to ecosystem research (Roche, 2005). At the crossroads between democracy and policy efficiency, participation required that transparent information and decision-making at the scale of river basins became the norm.

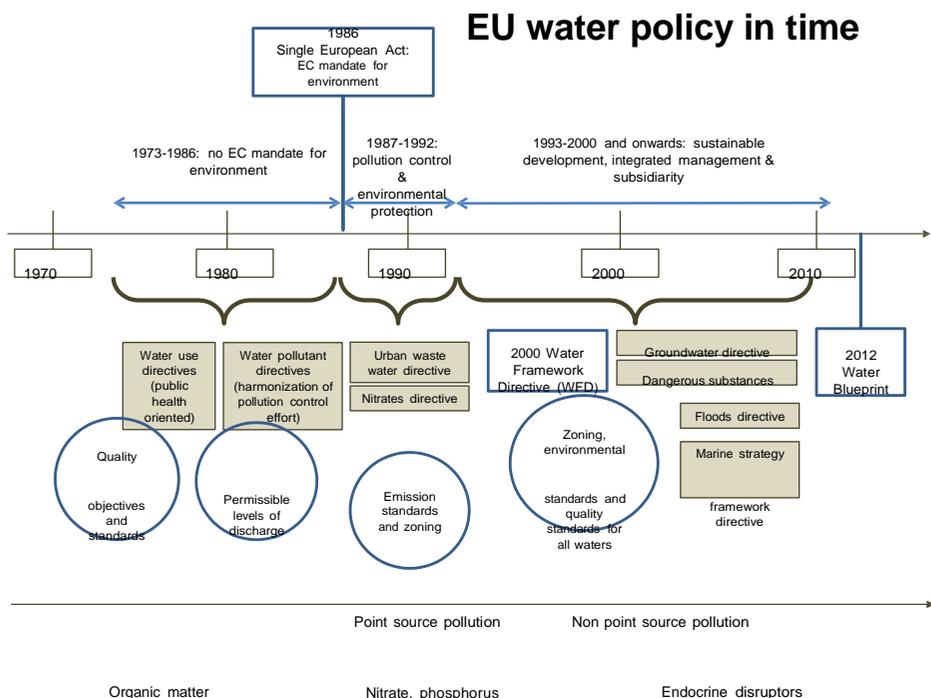
Box 4. Timeline of European Union water policy. Sources: Kallis and Butler (2001); Bouleau and Richard (2011).

Environmental thinking came to the fore in the 1960s. It began to materialize in concrete form in the 1970s, building on international events and publications (Meadows et al., 1972; 1st World Summit for the Environment, Stockholm; European Environmental Summit, 1972). At the European level, the first initiatives in the field of water took place at the same time. They were taken within the health-risk and competition-distortion umbrella, the environment being considered as a secondary issue (Bouleau & Richard, 2011). From 1986 onwards, the environment became a community competency with the adoption of the Single European Act.

According to various authors, three 'waves' can be identified in the history of European water policy (Aubin & Varone, 2002; Barraqué, 2004; Barraqué, Isnard, & Souriau, 2015; Bloech, 2004; Kaczmarek, 2006; Kallis & Nijkamp, 2000):

- A first wave of water directives (1973–86) aimed at reducing the health risks for citizens according to different water uses: bathing, drinking, and fish and shellfish production. Their focus was the establishment of water-quality norms and thresholds for different types of waters depending on their end use.
- A second wave of water directives (1987–92) aimed at reducing the most significant pressures that explained the poor chemical quality of aquatic ecosystems. As demonstrated by Kallis and Butler (2001), this wave opened up European water policy. With regards to governance, it positioned the public intervention of states between the wider public and a higher-level 'European referee', strengthening the consciousness of the public and its interest vis-à-vis water issues.
- A third wave (1993–onwards) recognized the need to strengthen the coherence and effectiveness of European water policy in order to achieve environmental objectives that had a clear ecological dimension. In addition, it gave the basis for addressing the issue of governance, the hydrological unit becoming the central scale for water governance and providing room for addressing local water-management issues. The cornerstone of this third wave was the European Union Water Framework Directive (WFD) adopted in the year 2000, the objective of which is good water status (including ecology) for all aquatic ecosystems. With the adoption of the WFD, water became (at that time) the environmental domain with the most developed European legislative framework (Kallis & Nijkamp, 2000). The adoption of the WFD was followed by the adoption of its two daughter directives on groundwater and hazardous substances. Finally, this was complemented by the adoption of the Floods Directive (2007) and the Marine Strategy Framework Directive (2008), two directives that followed the same (systemic) approach promoted by the WFD.

In conclusion, the logical frameworks that guide water management in Europe have shifted from fragmented and partial interventions to a coherent and systemic approach expected to deliver structural solutions to water-management problems. In the process, the European scale has had its part to play as a creator of basic principles while encouraging member states to apply the subsidiary principle to promote water management and action at more local scales.



Dangerous substances

Pesticides

Dangerous substances

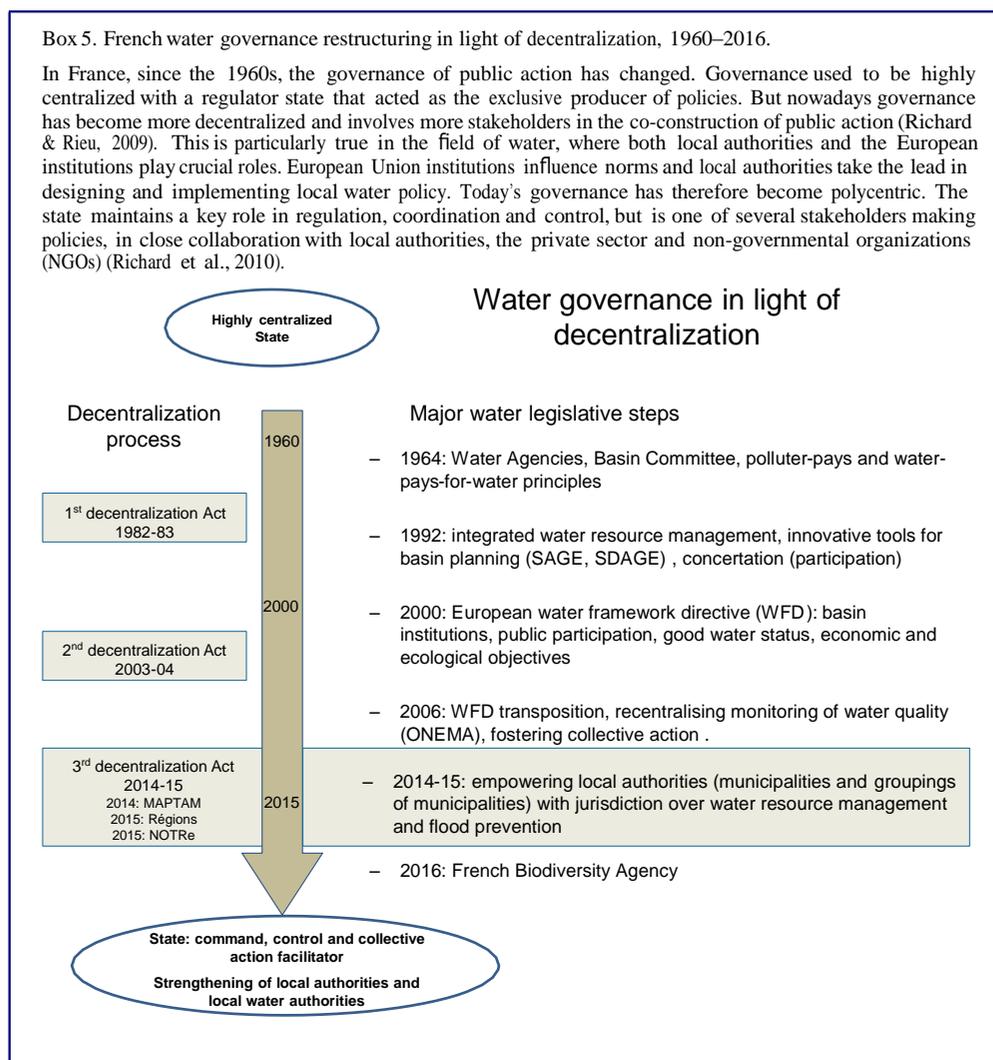
Micropollutants

From 2014 on: towards enhancing local authorities and broadening water governance

Recent territorial reforms have empowered local authorities (municipalities and groupings of municipalities) with jurisdiction over water resource management and flood prevention (Box 5). The 2014 and 2015 Acts (MAPTAM and NOTRe) set out to reduce the very high number of local authorities involved in water and sanitation management in France (due to having no fewer than 36,000 municipalities, whilst the entire European Union has 89,000 combined). Groupings of municipalities of fewer than 15,000 inhabitants disappeared so that only larger contracting authorities remain in charge of flood prevention and water management. Following these laws, France will have fewer than 2000 water and sanitation service water authorities by 2020, reducing their number by around some 90%. From a state perspective these change consolidate the structuring of contracting authorities at administrative and catchment scale (SAGE).

Box 5. French water governance restructuring in light of decentralization, 1960–2016.

In France, since the 1960s, the governance of public action has changed. Governance used to be highly centralized with a regulator state that acted as the exclusive producer of policies. But nowadays governance has become more decentralized and involves more stakeholders in the co-construction of public action (Richard & Rieu, 2009). This is particularly true in the field of water, where both local authorities and the European institutions play crucial roles. European Union institutions influence norms and local authorities take the lead in designing and implementing local water policy. Today's governance has therefore become polycentric. The state maintains a key role in regulation, coordination and control, but is one of several stakeholders making policies, in close collaboration with local authorities, the private sector and non-governmental organizations (NGOs) (Richard et al., 2010).



However, existing local water authorities, which are current contracting authorities at catchment scales, may be challenged. There is a recognized need to involve them fully in the current reforms. There is also a need to create local authorities in charge of developing ecological practices for river basin management for instance. Départements, which play an important role for rural areas, are seeking a new role to play – and one which the regulation has failed to specify. Regions received reinforced environmental responsibilities and are set to be leaders in biodiversity protection policy. The 2016 Biodiversity Act created new tools to bridge better water issues and other environmental concerns. ONEMA merged with three other public institutions to create the French Biodiversity Agency (FBA). As ONEMA is funded by water agencies, this provided a strong signal for enlarging the ‘water agency system’ to more global environmental policies. The new FBA is expected to work hand in hand with regions to foster innovative ways of addressing environmental issues, water included. Which prompts one to ask, of course: are the water agencies losing their central role?

Three key lessons can be drawn from the evolution of water resource governance during the past 50 years in France. First, water agencies have evolved from public-financing bodies setting out to protect and enhance water quality to planning and financing institutions, both of which are key in terms of supporting and implementing water policies. Today the creation of the FBA has enlarged the scope of the action of water agencies concerning terrestrial biodiversity.

Second, from the 1960s, the governance system shifted from a very centralized situation to a much more decentralized one (three decentralization acts from the 1980s until present). Since then, the state has been repositioning towards an increasingly polycentric governance system. Today, it is restricted to its position as national regulator in charge of implementing European directives (regulatory framework) vis-à-vis local authorities that have taken over a wider role in terms of implementing water management policies. Defining who the contracting authorities are remains a key issue in recent debates relating to ongoing territorial reforms.

A third significant change, and related to the previous one, is the opening of the water decision-making processes to the public. As a consequence, more stakeholders and interests are involved in/contribute to public policy-making. De facto, the more stakeholders, the more stakes and issues emerge: this in turn leads to an increasing need for integration and dedicated planning and financing tools, and in terms of governance, it can lead to the construction of co-responsibilities (Salles, 2009) and greater stakeholder commitment in the policy-making process.

Water resource governance has thus evolved towards more effectiveness, more efficiency and higher levels of both trust and engagement. Referring to the OECD Water Governance Principles, significant achievements have been made since 1964 with respect to: ensuring sound water management regulatory framework (principles 7 and 11) and promoting innovative water governance practices (principle 8); managing water at appropriate scales (basin, catchment, water territory), fostering coordination between scales and promoting stakeholder engagement (basin committee, local water commission) (principles 2 and 10); enhancing clear roles and responsibilities for water policy-making and regulation (state), operational management (local authorities, contracting authorities, local water authorities), and public financing authorities (water agencies, local authorities) (principles 1 and 6); enhancing data production and information,

transparency (ONEMA, water agencies) (principle 5); and encouraging regular monitoring and evaluation driven by European norms (principle 12).

France's water-governance system is nowadays equipped with consistent institutional frameworks and tools. Remaining challenges relate to: encouraging policy coherence and efficiency through more effective cross-sectoral coordination (principle 3) and adapting the level of capacity of responsible authorities regarding their new roles following the last territorial reform (principle 4).

A synthesis of the evolution of French water governance

As exposed above, the OECD Water Governance Principles are used in this paper as a frame to analyse the evolution of French water governance. Table 2 exposes a synthesis of how France has implemented each principle since the 1960s. All principles have been adopted and enforced so far. However, various degrees of maturity in the enforcement are observed, as shown in Figure 3. Hence, the French system has not stopped evolving and still needs to evolve in the implementation of certain principles.

As shown in Figure 3 and Table 2, France has been evolving in the implementation of four principles:

- Principle 1: regarding the roles and responsibilities of local water authorities.
- Principle 3: by pushing water policy to be integrated into biodiversity policy.
- Principle 4: on strengthening the capacities of responsible authorities.
- Principle 8: in encouraging experimentations, e.g., regions as a coordinator of regional water, biodiversity, land planning and economic development policies.

Besides, France still needs to make progress in the implementation of certain principles, as showed in recent reforms:

- Principle 3: remains a challenge to reach greater inter-sectoral coherence (water and sector-based policies – agriculture, industry, urban and territorial planning etc.).
- Principle 10: on engaging citizens in the design and evaluation of water policies.
- Principle 11: regarding trade-offs across generations.

Changes dynamic: disputes as one of the main drivers

French water governance has changed within the consensual framework outlined above. Disputes were one of the main drivers of change. Disputes arise from different types of stakeholders. These stakeholders may be politicians, pressure groups, users and any civil society organizations. With an increasing role for the European Union's institutions, new mechanisms for dispute procedures opened. European citizens are entitled to refer a case to the European Court of Justice in the event of a member state failing to respect its obligations. Indeed, the French state, in keeping with others, has regularly been fined by the European Commission for failing to comply with various directives. For example, France was fined in 2014 for failing to implement European regulations in the fight

Table 2. Synthesis of how France implements the Organisation for Economic Co-operation and Development's (OECD) Water Governance Principles.

Aim	Water Governance Principles	Trends in the French water-governance system	
		Water service governance	Water resource governance
Effectiveness	Principle 1. Clearly allocate and distinguish the roles and responsibilities for water policy-making, policy implementation, operational management and regulation, and foster coordination across these responsible authorities	Clear responsibilities defined by laws and decrees to each stakeholder involved in water service governance since the 1960s.	From a centralized political system in the 1960s to a more decentralized system today. Towards a clarification of roles and responsibilities with the current territorial reforms: <ul style="list-style-type: none"> • Local authorities: contracting authorities, financing, towards more competencies • Water agencies: from purely financial agencies in the 1960s to planning and financial water agencies in the 1990s and toward planning and financial agencies for biodiversity today • State: regulation and control Today: clear responsibilities: regulation (state), operational management (local authorities, contracting authorities) and public financing authorities (water agencies, local authorities)
	Principle 2. Manage water at the appropriate scale(s) within integrated basin governance systems to reflect local conditions and foster coordination between the different scales	More opportunities with recent reform to have local authorities managing the full water cycle. Fostered coordination between scales: basin, catchment, water territory, administrative territories	
	Principle 3. Encourage policy coherence through effective cross-sectoral coordination, especially between policies for water and the environment, health, energy, agriculture, industry, spatial planning and land use	Encouraging policy coherence and efficiency through more effective cross-sectoral coordination (biodiversity, agriculture, urban planning etc.): evolution underway spurred by recent reforms	
	Principle 4. Adapt the level of capacity of responsible authorities to the complexity of the water challenges to be met, and to the set of competencies required to carry out their duties	Recent reforms aim at increasing the capacity of responsible local authorities for water and sanitation services by increasing their size	Strengthened capacity of the responsible authorities Further capacity-building is required following last territorial reform

(Continued)

Table 2. (Continued).

Aim	Water Governance Principles	Trends in the French water-governance system		
		Water service governance	Water resource governance	
Efficiency	Principle 5. Produce, update and share timely, consistent, comparable, and policy-relevant water and water-related data and information, and use it to guide, assess and improve water policy	Recent reforms aim to enhance data production and information and transparency with the creation of the French Agency for Biodiversity. It manages the national information system on water and sanitation services, and data on water resources monitoring		
	Principle 6. Ensure that governance arrangements help mobilize water finance and allocate financial resources in an efficient, transparent and timely manner	Water agencies' fees on water bills fund investments and resources-protection measures 'Water pays for water' principle implies that expenditures by water and sanitation services are funded by water bills and dedicated grants or loans. The intra-basin solidarity and the water pays for water principle, in place since 1964, are today threatened by a state deduction from the water agencies' budget A strict principle of cost recovery is imposed to services Remaining questions about the ability to fund the replacement of infrastructures		
	Principle 7. Ensure that sound water management regulatory frameworks are effectively implemented and enforced in pursuit of the public interest	Ancient, robust and efficient but complex regulatory framework		
	Principle 8. Promote the adoption and implementation of innovative water-governance practices across responsible authorities, levels of government and relevant stakeholders	Some recent advances on the water-governance framework promoting social learning, encouraging experimentation (e.g., regions) and synergies across sectors and scales		
Trust and engagement	Principle 9. Mainstream integrity and transparency practices across water policies, water institutions and water-governance frameworks for greater accountability and trust in decision-making	Improved trust and engagement through improved performance of water and sanitation services. Still progress to be made involving water users and communicating better with citizens	Legal and institutional frameworks that hold decision-makers and stakeholders accountable (right to access information, e.g., water agencies; adoption of multi-stakeholder approaches etc.)	
	Principle 10. Promote stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation	Promoted stakeholder engagement: basin committee, local water commission, user committees etc.		
	Principle 11. Encourage water-governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations	Urban-rural cooperation and solidarity enhanced by recent reforms encouraging the groupings of local authorities	Water-governance framework promoting participation, empowering local authorities and users Further attention to be paid to trade-offs across generations	
	Principle 12. Promote regular monitoring and evaluation of water policy and governance where appropriate; share the results with the public and make adjustments when needed	Regular policy evaluation by the 'Cour des Comptes', parliament or senate available to the public	Encouraged regular monitoring and evaluation driven by European norms	

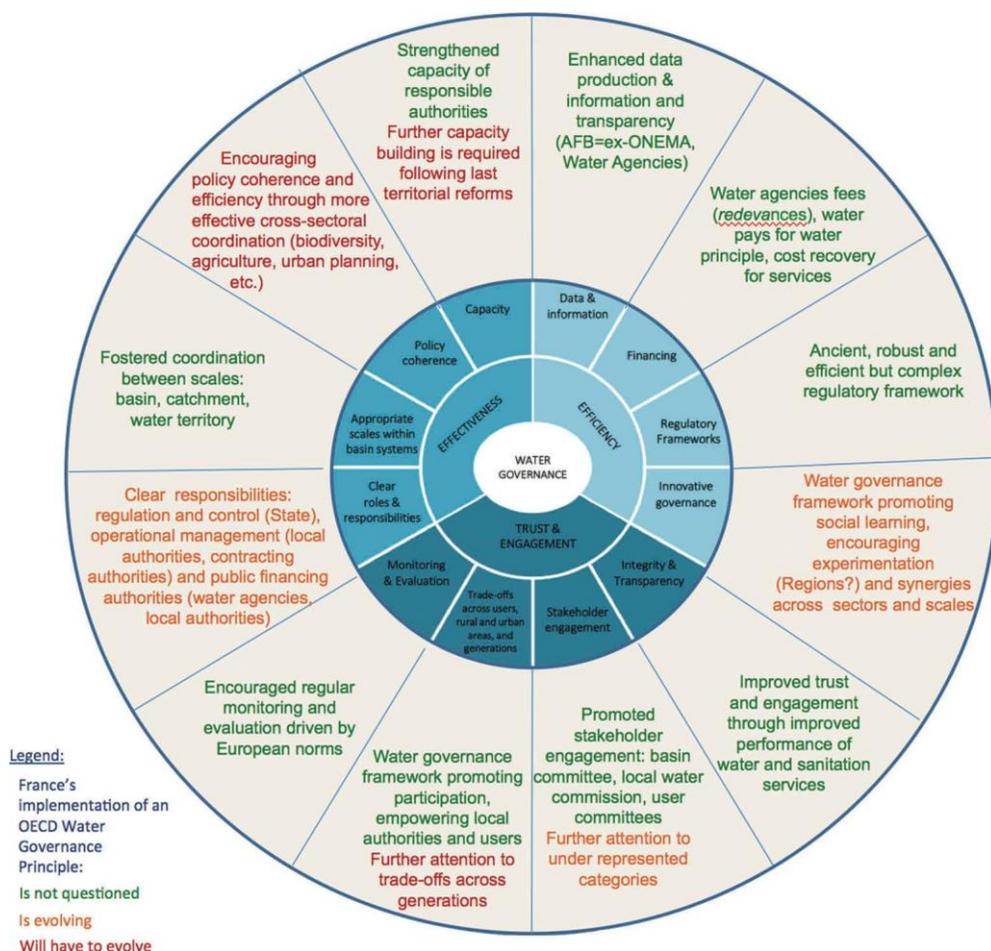


Figure 3. Recent and needed evolutions in the implementation of the Organisation for Economic Co-operation and Development's (OECD) Water Governance Principles in France.

against nitrate pollution. These cases provide added opportunities for environmental non-governmental organizations (NGOs) to be heard by the government. There is no specific policy evaluation body, but various public institutions are entitled to assess environmental policies. Disputes may be triggered by events representative of failures of the system.⁷

Two emblematic disputes in the sector that led to governance change are set out here for illustrative purposes – the first in the realm of water services, the second in the field of water resource management.

Disputes in water and sanitation utility management: the way to local authority capacity reinforcement

As already explained, water and sanitation services are characterized in France by the heavy involvement of private companies. This private sector participation has been

debated in France since the creation of water and sanitation services at the end of the 19th century. However, these debates have never led to any change in the delegation model. That said, they have contributed to strengthening the legal framework. The laws passed between 1993 and 1995, for example, and designed to increase integrity and transparency, were the political response to a major legitimacy crisis faced by the sector for the past 50 years. In a context of a strong increase in water and sanitation tariffs partly due to the implementation of the Urban Waste Water European Directive, cases of corruption involving politicians and private water companies were responsible for the introduction of a feeling of suspicion on the part of citizens. The most famous case is the one of the mayor of Grenoble, Carignon, who was convicted in 1995 for illegal use of the private operators', Lyonnaise des Eaux, funds. Trust had to be rebuilt. The process of rebuilding trust has been unfolding since towards tighter competition rules, more transparency and information. The 1993, the Sapin law introduced more rigorous rules relating to competition, which led to shorter contracts with lower prices (Colon, 2017). The 1995 Barnier and Mazaud laws established annual accountability frameworks. The 2006 Water Act introduced compulsory accountability on key performance indicators. This law also created a national information system on water and sanitation utility management (called SISPEA), and run by the FBA. This information system was the first attempt to gather key factual material on water and sanitation services. Annual reports as well as data sets are now available at no charge online. This new national statistical system is very much criticized for being incomplete (few water utilities send data, and data quality has to be improved). However, we consider its very existence as progress, requiring further investments to make sure it fully meets its role. A central criticism towards private-sector participation was that the funding of investments made by private companies was far from transparent. Many shared the view that even when private companies were paid to fund the replacement of existing equipment, private operators tended to postpone replacements right until the end of their contracts. Contracts were drafted so that responsible authorities were not entitled to be paid back for what had not been invested. The 2006 Water Act also contributed to clarifying this by making such financial arrangements illegal (Guérin-Schneider & Colon, 2017). Since 2006, if a planned replacement has not been carried out by the end of the contract, private operators are obligated to reimburse the authority. Even the recent decentralization phase III law (NOTRe 2015) may be read as a consequence of this legitimacy crisis of the 1990s, essentially linked with the weakness of local authorities to ensure their accountability in relation to consumers and citizens alike.

After the remunicipalization of the Parisian water utility, some stakeholders considered that the debate on private-sector participation might well return.⁸ In fact, the opposite happened. By showing clearly the capacity and responsibility of local authorities to choose freely the way they want the service to be operated, and that such choices were reversible, this contributed to a shift in the debate. The issue was not whether the private sector should operate water utilities. The real issue relates to the capacity of responsible authorities to manage their relationships with their operators properly in all cases (public, public/private or private operators). This includes having the capacity to collect data and analyse them, control private operations and design orientations for a sustainable future (Roche, Guerber, et al., 2016). Good practices of performance contracts with no regard for the public or private status of the operator are

now shared, for example, in ASTEE congresses, gathering representatives from all kind of systems (Roche, Le Fur, & Canneva, 2012).

Disputes in water resource management: the example of the reform of users' representation in basin committees

Basin committees, which were created in the mid-1960s, gather public and private stakeholders concerned by water management in a river basin. They debate and define through dialogue processes the main lines of local water resource management. Their role is that of a 'water parliament'. The Environment Code states there are three categories of members: category 1: representatives of local authorities (regions, départements and municipalities) which account for 40% of total members; category 2: water users (domestic users, professional organizations, NGOs for environmental protection or users defence, fisheries, experts) (40% of total members); and category 3: representatives of the state (20% of total members). The committee is headed by a president elected by a vote of and among category 1 and 2 members.

With growing environmental awareness from the 1980s, the composition of these river committees has started to be regularly contested. In 2013, the French government organized the Second Conference on the Environment that brought together stakeholders from the state, local representatives and civil society to discuss and challenge French environmental policies. The need to work on water governance became evident and strongly felt. A taskforce was created with the National Water Committee on Governance in 2013. The main dispute, expressed by NGOs, was that river committees suffer from 'too big a representation of farmers, with little room for domestic users'.⁹

A clear obstacle to change was that the mandates of the various basin committee members were about to terminate (June 2014) when the French national water committee ('Comité national de l'eau') made its proposals (at the end of 2013). Given that it takes between 4 and 6 months to renew memberships, there was insufficient time to dwell upon deep regulatory reform. The decision was finally made to issue a decree by the Ministry of Ecology, Sustainable Development and Energy on 27 June 2014. This text divides the category 2 of members between economic and non-economic users (domestic, NGOs). Two subcategories of professional representatives were created: 'Agriculture, fishery, fish farming, canal transport and tourism' professionals and 'Industries and cottage industries'.

This decree was the first step towards deeper changes relating to local water governance. As the 'Cour des Comptes' 2015 report states, despite this 2014 reform, civil society representation remains low. Farmer representation, by way of contrast, is mainstreamed by very influential organizations, and local authority representation is questioned due to decentralization laws. So while the existence of river committees has not been called into question, there is manifestly room for change in line with society's evolving expectations.

It is clear, then, that France's water-governance system has evolved quite consistently during the course of the last 50 years. In the realm of water resource management, the governance framework has become more inclusive, with an increasingly important role to civil society, NGOs and with constantly reinforced participatory processes. The influence of Europe has led France to move towards more result-oriented policies.

France is today moving to integrate water in sectorial policies. In the water services realm, the governance system has moved towards more power to responsible authorities with more integrity and transparency, and an enhanced role to civil society.

Discussion of the model of change compared with the OECD water governance cycle

France's water-governance system has been presented in this paper as shared between water resource management, on the one side, and water and sanitation services, on the other. Such a presentation makes sense in that these two water worlds have developed over time as two connected but parallel sets of actorhood, rules, funding and territories. However, the focal point that makes these two worlds now meet is the issue of who are the contracting authorities. Who is entitled and owns the capacity to fund, organize and act for water management? On the side of water resource management, there is a need to develop a responsible, able and empowered authority to manage flood risk. On the side of water and sanitation utilities, there is clearly a need to strengthen responsible authorities to build a sustainable future within the context of increasing uncertainties and lack of public finance. This question of the capacity of the responsible authority is the core issue regarding the current French water-governance system being addressed by recent laws.

French water governance is consistent with OECD principles. The current legislation is based on a 50-year experience of IWRM and more than a 100-year experience of public/private partnerships for water and sanitation utility management. Worthy of note is that the framework defined 50 years ago has remained largely consensual. The state has played a key role in the building of a common culture of water governance, implemented and executed by its state engineers.

How has such an evolution occurred? We are far from having a 'rational' process of policy-making defined in the water policy cycle by the OECD: policy formulation/ implementation/monitoring/evaluation/new policy formulation etc. Constant disputes have been responsible for leading to movement within this framework. These disputes arise from stakeholders who strive to ensure that their perspective is taken into account in the formulation of policy. Evaluations occur occasionally on a topic when the need to tackle a specific issue is felt, perhaps as expressed by a pressure group. These evaluation reports may be held by politicians ('rapports parlementaires') or by an independent public finance control agency ('Cour des Comptes') or by advisory board proposals placed near the ministries (CGEDD). Thus, there is not one state body in charge of water policy assessment, but a diversity of public institutions that can produce evaluation reports within their mandate. These observations are consistent with advances in policy analysis theories (e.g., Sabatier & Schlager, 2000).

Lessons from France

This paper had two purposes: to present recent developments within the French water-governance system, and to learn from its evolution to understand the changing dynamics.

The main idea advocated here is that the water-governance framework that is well known worldwide has attained a state of consensus in France. However, the model is constantly challenged, which itself encourages change. Recent developments have already been criticized. The compulsory transfer of the responsibility of water and sanitation services to groupings of municipalities may generate a less flexible and grounded management (Barbier, 2015). In February 2017, new legislation was introduced to remove this obligation. The limitation of this changing dynamic model is that there is little space for less powerful actors. In other words, it is the powerful actors who retain the upper hand.

What is there to learn, then, from France's system of water governance? In fact, there are two key points:

- The first is the question of who bears the role of contracting authorities – a crucial issue in the French context. The French feedback on the 'who does what?' issue illustrates that it is clearly inherited from the country's complex institutional setting, which goes far beyond the water-governance system alone.
- Second, it is imperative to ask what is the place of a water-governance system in general. After 50 years of specific water policy, it is beginning to fragment at the edges and face new challenges. There is a need to integrate issues relative to water into sectoral policies such as urban planning etc. Furthermore, water is no longer the 'crown jewel' of an emerging environmental policy. Other environmental issues such as atmospheric pollution, climate change and biodiversity are now competing for the centre stage. The creation of the FBA in 2017 seeks to integrate water governance with broader biodiversity management issues. France's water-governance system nevertheless benefits from a strong and well-established basis that has proven to be very resilient over time. It has demonstrated sufficient strength and flexibility to be able to adapt and to play a key role in broader environmental policy issues, too.

Through this French case, we highlighted how the main OECD Water Governance Principles may be implemented. They appear necessary, but their sole implementation may not be enough to assess the quality of a national water policy. This would require a specific policy-evaluation analysis to assess the results and outcomes of the French water policy. Our paper stresses the main limits and advances in the French water-governance system of which the authors are aware, but it does not provide a thorough policy evaluation.

Is this model replicable? We do not believe in one-size-fits-all models. We showed how much the French water governance is bound tightly to the organization of the state, local authorities and private companies. Some principles may be and have been replicated, as the delegation model or the river basin management of water resources. Beyond that, each country has to find solutions to adjust to their own local context.

Notes

1. ASTEE, the Association Scientifique et Technique pour l'Eau et l'Environnement, is a French non-governmental organization (NGO) bringing together water professionals and researchers to work on, share and produce knowledge on environmental issues.

2. OECD, see <http://www.oecd.org/governance/oecd-principles-on-water-governance.htm/>.
3. For simplification, this paper focuses on Metropolitan France, excluding overseas territories (for a specific review, see Roche, Colas-Berlcour, et al., 2016).
4. French legislation is meant to comply with European Union regulation. Since 2016, for instance, the European Directive on concession has been enforced and applied to the water and sanitation sector.
5. Note the permanent dialectical position between those seeing water agencies as ‘instruments to enforce the polluter-pays principle’ (chiefly, neoclassical environmental economists) and those putting an emphasis on cost sharing and common resources management (political scientists). In 1964, economists put forward the eco-tax model in the debates on the Water Act (Bouleau & Richard, 2011). The principle of fees paid by water users was accepted only provided that it be used for investment. The elected representatives insisted that the rate should not be too high at the outset in order to avoid having a surplus which might be used for other purposes. The compromises resulted in setting up water fees that, in fact, hardly are ‘environmental taxes’ and rather are an intermediate between economic efficiency and collective savings.
6. ONEMA, the Office national de l’eau et des milieux aquatiques, is a state public body under the authority of the Ministry of Environment, now the French Biodiversity Agency (Agence Française pour la Biodiversité).
7. For instance, storm Xynthia of 2010 that hit the west coast of France caused 59 deaths and €1.5 billion of damage. Local authorities and the state were criticized for having allowed urbanization on submersible coastal lands, exposing thousands to a flood risk in so doing.
8. The expected remunicipalization wave after the Paris case has been very limited. From 2010 to 2014, the rate of the population served by water public operators has stagnated around 40% according to the ONEMA.
9. Coordination eau Adour Garonne, letter to the committee president (5 December 2014)

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