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## ***Viewpoint* – Happy Like a Clam in French Water**

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**ABSTRACT:** After a few lines about his personal history, the author presents the legal context for water in France in the last century, and describes the hesitant first steps of the French *Agences de l'Eau* during the 1970s. While the financial system of French water policy is presented in detail, the role of economic transfers between various categories of water users is underlined. Then, the general socio-political aspects of French water governance are explained. A diagram illustrating the financial decision-making procedure for water (the 'water wheel') is given. Simple advice is drawn from the experience of a CEO of a water agency: the most useful skill for a water professional is to know how to swim...

**KEYWORDS:** Agences de l'eau, river basin management, river basin organisation, water management

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### **PERSONAL BACKGROUND**

First of all I must confess I do not consider myself a real water professional. Some people think I am. I draw much pride from this and thank them warmly. But I have no specific skill in hydrology or hydraulics.

I will not write my track record but instead just briefly explain how in France, during the 1970s, one could – against all expectations – become a so-called water expert.

As a young man, I graduated as a civil engineer in spacecraft and aeronautics. I spent my military service (obligatory during the mid-1960s) in launching a few satellites (among General de Gaulle's pet projects). Thereafter, I was involved in the building of the *Concorde* airplane engine along with the brilliant partnership of the British Rolls-Royce Company. It was a stimulating job.

I did however make a youthful mistake in my early career, which I can assure I never replicated. I just could not keep my deep doubts about the future commercial success of the *Concorde* to myself. I turned out to be right, and for this very reason, plus the fact that I was not an economist, I was soon fired.

When you fall off a horse, you must try to jump on the back of the next one you see. So I did, and made two sensible decisions:

- As I had been criticised for not being an economist, I decided to attend an evening course in economics in a university located very close to my home. This proximity is probably the main explanation for my success three years later in obtaining a PhD in Applied Economics in Research and Development (R&D) studies.
- The second decision was to feed my family as soon as possible. I was ready to accept any job that helped me to meet this important objective. During the late 1960s the French (River) Basin Financial Agencies (*Agences Financières de Bassin*, AFB) were created. I insist on the word 'financial'. I did not know what it meant exactly, but I thought it would be a good opportunity for me to supplement my knowledge of economics for future use. My application for a position at

the AFB was accepted, because of both the reputation of the university I studied at and a personal recommendation that I carried with me.

In spite of this, I definitely did not know anything about water techniques and/or business. I confessed my ignorance to my new boss.<sup>1</sup> – "So you will learn on-the-job!" he replied. "I'll give you about a year to write a 'white paper' on what water policy should be for the next 30 years, until 2000. You don't know, but nobody does either. Then you are perfectly relevant for this kind of job!"

I accepted this sharp analysis as a personal challenge. During the day, I worked on developing my professional skills: I attended conferences, I interviewed numerous individuals, and I read a large number of reports and books about water policies in France, Europe and overseas. And during the evening, I tried to marry what I had learned from my work with the water agency with the appropriate theory.

This meant that I was very busy, which did not go down too well with my wife and young children who seldom saw me. But that's another story...

During this period, I was very keen on foresight studies, which were fashionable techniques at the time (in particular at the OECD). I used them in simultaneously writing the first parts of my thesis in Applied Economics,<sup>2</sup> and some other relevant papers. I advanced what I had learned during the time spent in the Space & Air industry, i.e. systems analysis methods. I simply transferred them to the technological and social aspects of the water milieu in order to make an educated guess about what the hidden decisions could be. I was lucky because the de Jouvenel family (Bertrand, the father, his wife Héléne, their son Hugues), editors of the handsome *Futuribles* Journal allowed me to publish a long paper entitled 'Le modèle POPOLE (POLitique de la POLLution des Eaux)'.<sup>3</sup> Despite its qualitative and light vision, the paper drew much attention in that I suggested *developing* a policy upon water pollution instead of solely trying to eliminate it, which most of the time was financially and technically impossible.

This provocative proposal made me famous in the water world and facilitated my enquiries about future water policies. From then on, people wanted to meet me. This network of rewarding relationships was the prerequisite to a clear understanding of the socio-political aspects of water decision-making.

### THE HIDDEN BACKGROUND OF THE FRENCH WATER AGENCIES: FROM ONE REVOLUTION TO A FEW OTHERS

Somebody who is not familiar with French history (say, of the past three centuries) will find difficulty acquiring the necessary minimal understanding of current French water policy and its associated institutional organisation.

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<sup>1</sup> François Valiron (1923-2004) was a genius dedicated to water policies. As an *Ingénieur des Ponts et Chaussées*, he started his career in Tunisia developing water supply and irrigation. Once back in France, he was in charge of housing programmes for the *Caisse des Dépôts*, a centralised public savings bank. He was the genuine founder of the French water agencies. His success can be easily explained: he found the right solutions before theorising on them, which is better than apparently good theories with no solution at the end. He taught me very few of these solutions. He preferred to let me understand on my own what was, and still is, essential for the water business.

<sup>2</sup> This work was published under the title: *Innovation et évaluation technologiques* (Entreprises Modernes d'Édition, Paris, 1974).

<sup>3</sup> *Le modèle POPOLE (politique de la pollution des eaux)*. *Futuribles*, Paris, 1973. The 'comic strip' style of the name indicates the liveliness of the people who initiated the environmental policy in France.

France is a small but, in some ways, rich country: small in size (only approximately 550,000 square kilometres) but historically rich thanks to abundant water flow resulting from a temperate climate (annual available run-off was 3600 m<sup>3</sup>/capita in 1968, and is 3000 m<sup>3</sup>/capita today<sup>4</sup>).

Wealth is always tightly linked to politics, a word which means the various ways used to share power. Then who should allocate water among its different uses (domestic and agriculture, energy and industry, tourism and recreation, nature protection and ecology)? And who will pay? Both are constant concerns of any government. In fact, obtaining the maximum amount of pure water and avoiding to pay for it has been, still is, and probably will always be, the wish of every consumer, either the individual or an institutional entity (such as a municipality or a private company, for example). Finding a solution to this kind of conflict is the result of political compromise.

### **What has the French political context been?**

Two main ideological lines of thinking have permanently divided my country into opposing sides.

The first one bears the stamp of authority, i.e. the king's or emperor's authority (inherited from god or from some supreme being), and today the centralised Parisian authority is managed by its high-level civil servants who are nominated by presidential or ministerial decree, and not voted in by the people. The actual authority, i.e. the power to decide everything (sometimes anything) is an ongoing French Republican principle. It has nothing to do with the right or the left wing of temporary political opinion. Although the justification angle may be different, even sometimes radically opposite, when it comes to getting the job done, the real authority is always the same. A few people give the orders, numerous others obey – often reluctantly and most of the time disdainful of those whom they do not hold in high esteem. This top-down hierarchical decision-making process can deliver conservative outcomes as well as very progressive ones. From a power point of view, the end result is similar. What matters most is to be obeyed.

The second attitude can be called libertarian. After 1789, the French Revolution did not really change how authority was exercised (aristocrats left the running of France to the bourgeoisie, and family origin was simply replaced by competitive examination), but the three Worker's Revolutions of 1830 and 1848, and especially the Commune of 1871, brought about a radical change. Often their leaders were anarchists ('neither God nor master!') or appeared as such. They violently rejected any kind of authority and, for this very reason, immediately failed whenever the opportunity to exert power occurred. They did however create something which remains: the bottom-up decision-making process. A local debate at a grass-roots level could provide a consensus about basic issues which would then be enacted by a higher operational level. Frankly, this is rarely observed. Most of the time, a lobby of representatives will stifle the necessary low-level debate, so that no financial support is given to this creative process. But this frustrating situation does however raise high hopes of transforming a blocked society...

The above satirical description (which is also a rapid historical review) fits the French water sector exactly. The Bourbon Kings created the absolute monarchy and its administration. Sully, and Colbert, Minister of Finance of Louis the XIV, thus developed the *voyers*, a specific administrative body for highways. In 1716, under Louis the XV, this body took the name of '*Corps des Ponts et Chaussées*' (Bridges & Roads Corps). It was complemented in 1747 with the '*Ponts et Chaussées*' Royal School. But Colbert also created another Corps in charge of royal forests and navigable rivers. So, an embryo of French water policy took form at that time. It was, of course, restricted to the large water bodies which pass through the biggest cities but this initial choice was of paramount importance for the future. It

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<sup>4</sup> Given that an amazing amount of water is found in certain deserted northern areas of the planet, like Siberia or Canada, or the Amazonian forest in Brazil, 3000 m<sup>3</sup>/capita only represents half the average world figure. But it is 50 times higher than for many poor countries like Haiti, the Sahel area, the Gaza strip, etc.

explains why even today water policy is still a modest offshoot of the public works sector, led by civil engineers, and public as well as private bankers. They created the spirit of the 'hydraulic mission'. Other experts like scientists, naturalists, economists, etc. are most welcome but they play a marginal role and they are rarely admitted to the highest decision level for water.

Napoleon I kept the royal, then revolutionary, arrangements for dealing with large rivers, basically supposed to flow under bridges. He developed the idea of 'Corps' and complemented it by strengthening the '*Corps des Ponts*' (in 1804), then adding the '*Corps des Mines*' (in 1810, after its creation in 1794 during the Revolution). In the field of water, the Mines Corps was responsible for deep groundwater, considered to be an exploitable resource, just like ore or coal. The '*Ponts et Chaussées*' were entrusted with navigable rivers, while the '*Eaux et Forêts*' kept the small rivers and some wetlands. But drainage and irrigation technologies were with the *Ponts et Chaussées*. It is only at the beginning of the last century that a specific '*Corps du Génie Rural*' (Rural Engineers Corps) was separated from the '*Ponts*'. A reform taken under de Gaulle's presidency merged rural engineering with water and forestry to form the (*Corps du Génie Rural et des Eaux et Forêts* (GREF). So, when the *agences de l'eau* were created, water policy was technically split between three Corps: *Ponts* (navigable rivers and urban water), *Mines* (groundwater) and *GREF* (small watercourses, drainage, irrigation).

### **The invention of the river basin agencies**

There was some competition between the three corps, which was more intense whenever a fuzzy limit existed between the relevant areas managed by each corps, and for which it was responsible. Whilst a minister is only nominated for a couple of years and, most of the time, has no technical knowledge, the corps members have the required skills and are active over several decades. They were the obvious water experts and managers. They however did not anticipate the increase in water pollution as of the late 1940s after WWII, caused by the boost in industry and productivity on the one hand, and the urban-demographic boom on the other. Because of the war, and also because of the lack of consciousness about the environment since then, virtually nothing had been done since 1935 to control water pollution.

Following the Marshall plan for rebuilding Western Europe, some government agencies launched a series of 'technical missions' to study the US model. Ivan Chéret,<sup>5</sup> the father of French water policy, already knew this vast country, and when he was put in charge of a benchmark mission to study other models of administration for water and the environment (a word which was not yet in use during the late 1960s) and the possible changes which could occur in the French territorial context, he preferred to visit the Ruhr in Germany.

In France, during this post-war era, public money was managed at central level; budgeting water supply and pollution control for municipalities was very simple and totally politically oriented. Municipalities in favour of the government were given reasonable support for their water infrastructure needs. Extreme oppositional municipalities were also treated well, because they were in critical urban areas which allowed them to be kept in peace. In-between, moderate areas and vast territories got little. Of course, no 'hydrological attention' was paid to the geographical location of the beneficiaries (whether upstream or downstream of each other). The result was unhealthy tap water, unprotected resources, highly polluted water bodies, and vanishing fish species. Even the industrial sector experienced dramatic difficulties. The concrete piles of a number of river bridges were corroded due to poor quality and overly acidic water. And from then on, it was understood that when its bridges would be attacked the French administration would strongly react...

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<sup>5</sup> Ivan Chéret, *L'eau, Le Seuil*, Paris, 1967.

Ivan Chéret's remarkable suggestions were translated into a new comprehensive water law, voted in an atmosphere of general indifference during the last days of 1964.<sup>6</sup> Two other laws complemented it and finally replaced it, in 1992 and 2006, respectively.<sup>7</sup> This updating had two different objectives: being in line with the European water policy (Urban Waste Water and Nitrates Directives of 1991) and the Water Framework Directive, passed in 2000;<sup>8</sup> and trying to tighten the administrative and financial control of the water institutions. From a socio-political point of view, the interesting law is the first one voted in 1964, because it opened up new perspectives in public management, including a bottom-up process for collective decision-making. On the other hand, the two subsequent laws voted in 1992 and 2006 undermined this initiative in a desperate attempt to preserve the status quo...

What were the main aims of the 1964 French Water Law? First of all, water policy had to observe a land-use planning principle in accordance with hydrology, and the lumpiness of needed investments. From then on, a 5- or 6-year programme was developed covering upstream (river sources and tributaries) to downstream reaches (estuaries and coastal areas). The corresponding territory was the river basin, which fostered a new governance, different from the previous one which distinguished between groundwater, navigable rivers and small streams.

The above-mentioned three technical water corps strongly opposed this revolutionary arrangement that threatened their historical authority. Two whole years were needed to publish the full texts of the 1964 Law. A compromise agreement was finally found. It divided French territory into six water basins. Five of them were (and still are) related to complete or portions of large rivers: the Loire, the Rhone, the Garonne, the Seine and the Rhine. A sixth basin, located in northern France, near the Belgium border, had no important river in its area. Added to the five others, this meant that management of the six water basins was shared among the three water corps. The two richest basins with the largest cities (Seine-Normandy around Paris; Rhone-Mediterranean coast and Corsica, around and south of Lyon) were attributed to the Corps of Bridges and Roads. The northern and eastern basins, where the coal and iron mines plus heavy industry were located (Artois-Picardie around the city of Lille; Rhine-Meuse for Lorraine and Alsace) were entrusted to the Mines Corps. The remaining part of France, covering half of its surface and including the West and South-West which are comparatively poor and agriculture-oriented regions, was left to the *Corps du Génie Rural*: Loire-Brittany is managed from Orleans, a relatively small city but close to Paris; Adour-Garonne, where rivers flow to the Atlantic coast between Charentes and the Spanish border, is managed from Toulouse, the largest city, near the Pyrenees.

The leadership retained by the three corps (in their defence, clearly, they have both the knowledge of, and experience with, water) was not just technical. The name given to the six new basin institutions sounded bizarre: *agences financières de bassin* (financing agencies). Agency was an anglicism inherited from the U.S. (USEPA, the Environmental Protection Agency was being set up in the late 1960s and started working in 1970). From a strict French administrative point of view, it was viewed as an effort to decentralise the national system that revolved around Paris, and even a dangerous covert attempt to shape a future federalism...

But worse still, the adjective 'financial' was provocative. The technical excellence of the Corps of Engineers was proven and justly famous. But over the centuries, these high-level civil servants had been

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<sup>6</sup> Loi n° 64-1245 du 16/12/64 relative au régime et à la répartition des eaux et à la lutte contre leur pollution. [www.legifrance.gouv.fr/affichTexte.do?cidTexte=LEGITEXT000006068236&dateTexte=20090825](http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=LEGITEXT000006068236&dateTexte=20090825)

<sup>7</sup> Loi n° 92-3 du 3 janvier 1992 sur l'eau. [www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000173995](http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000173995)  
Loi n° 2006-1772 du 30 décembre 2006 sur l'eau et les milieux aquatiques (version consolidée au 14 juillet 2010). [www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000649171](http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000649171)

<sup>8</sup> 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. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0060:en:HTML>

used to be accountable to the government for spending public money.<sup>9</sup> Most of them had very limited experience and sometimes no experience at all, in levying funds from various origins, to manage them, and to allocate them as the risk-takers they were supposed to be from now onwards...

Indeed, the 1964 law introduced another innovation: the agencies obtained financial autonomy. They could levy their own taxes, which, from the beginning, did not depend on the central State budget as would have been the case earlier. Upon adoption by a basin committee consisting of some one hundred elected or nominated local representatives, each agency could fix, for 5 years, the level of taxes required to provide important subsidies and zero-interest loans to environment-friendly water investments. At least one third of these waterworks (such as water feeders and pipes, dams, groundwater intakes, treatment plants, sewer systems, sewage works, river protection, etc.) was to be financed by the beneficiaries (municipalities, industries, farmers), and at least another third by the water agency. Additional funding would come from a local territorial authority (the county, sometimes the region).

Water infrastructure and technical studies were programmed according to a list of priorities decided by both the basin committee and the water agency, and not by the central administration, a good (and totally new) example of a tentative bottom-up decision-making process.

### **The hesitant first steps made by the water agencies**

The relative independence of the newly created 'River basin financial agencies' was not welcomed by the central administrative authority, although the agencies were under its supervision and all six of them were managed by the three historical water corps. In 1967, nothing important happened except an initial modest experiment in the north of France, where no major river flows, consisting in the creation of the smallest water agency, called 'Artois-Picardie'. In 1968, the May uprising practically put a stop to any other development. It was only during 1969, five years after the water law had been voted, that the agencies' work became noteworthy.

At that time however, the agencies were poor. The charges they were supposed to levy had neither been made public, nor consequently collected. As with any new business, the agencies had a lot of immediate expenses, and could only hold hopes of mid-term financial income. They were obliged to borrow from the French government, which of course turned down their requests. Fortunately, F. Valiron, head of Seine-Normandy, had formerly worked for the *Caisse des Dépôts et Consignations*, the top French national savings bank. A five-year loan was consented. The richest agencies refunded it two years later.

There is a lesson to be learned from that episode: when a fairly poor institution has a low level of financial capability after having paid its administrative expenses (such as salaries, housing costs and so on), it generally focuses on research and communication activities. These tasks are cheap in comparison with other more essential (public as well as private) issues. Scientific and technical studies are no doubt useful, and communication activities are useful at times. But, taken on their own, they shape a virtual space where talking replaces doing. After two or three years, during which studies and advertising campaigns follow one another, opportunity is given to other stakeholders to put an end to the sterile institution (public or private) and to start all over again.

This was not the case for the French water agencies. The early 1970s were glorious times. Many water projects had been put on standby or cancelled during the late 1930s (after the Popular Front of 1936 and during WWII) in the field of dams, water supply and, in particular, waste water control; all these and other projects which had been set aside for 25 years (from 1945 to 1970) by sluggish bureaucrats, were suddenly revived.

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<sup>9</sup> In a tradition inherited from Napoleonism, the Corps usually were paid a small percentage of the public works they directed, including on behalf of local authorities; this only reinforced their culture of solutions based on public works.

This successful period was the result of two fortunate coincidences:

- Central administration was convinced that the water agencies would fail. At first, it neglected to pay a great deal of attention to them, and no ministry had been chosen to supervise and constrain them, apart from the Treasury. Then in 1971 an Environment Ministry was created in France to supposedly exercise the appropriate control. But due to its financial weakness and a certain lack of organisation this did not become possible until the end of the 1990s.<sup>10</sup>
- As of the late 1960s, most French industrial sectors understood that the new rules of competition would henceforth be drawn up on an international scale, at least by the European Commission, but not by the French administration which would probably adopt a modified version only several years later... Among the more restrictive European regulations adopted after 1975 (Directives on toxic substances), was the obligation to quickly adopt less wasteful water processes and efficient pollution control plants and practise environment-friendly behaviour. Then, in the 1980s, industries were emulated by the largest towns, then from the 1990s onwards by all the cities. Only the farmers resisted for several decades (until now in fact); they could continue to waste the water resources and pollute the environment because their activities went uncontrolled. This situation has fortunately begun to change in the last few years with the new generation of farmers.

In order to develop an innovative water policy, the water agencies were practically given a free hand in delivering suitable new programmes. There was also a group of stakeholders (especially industry and major towns) interested in implementing them.

In other words, in the absence of political pressure (from a junior minister relying on a weak cabinet) and with a vision shared with the main water users, the water agencies (at least those four located in northern and eastern France) were able to undertake ambitious and efficient public works campaigns, which had been beyond dreams in the traditional French context.

Let me try now to explain how it worked, from a socio-political point of view.

### **FINANCING WATER POLICY: THE POLITICAL ECONOMY OF THE WATER AGENCIES**

Let us return to the French water law of 1964. In 1962, at the dismal end of the French-Algerian war, there were numerous French civil servants who had been committed to waterworks in Algeria and in other colonies and protectorates, who were looking for positions, preferably in the public sector of metropolitan France. The French administration, inherited from the Napoleonic era, paid particular attention to the number of years devoted to the civil service when it considered promoting older civil servants. The merit of the tasks they accomplished was obviously taken into account as well, but not so much as career duration.

But water engineers, who arrived from previous colonies or protectorates, were registered as Overseas French civil servants. The rules were similar to the ones used in metropolitan France but they were on a separate list. If these outsiders were integrated along with their local colleagues, it would lengthen the waiting list for promotion for the 'home-grown' category. No way. There was also a consequence regarding the French budget. The Treasury was supposed to pay for these numerous extra

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<sup>10</sup> In this contribution, I hardly mention the environment ministry, because it played a minor role in water policy. For instance, it never managed to obtain full control on water *police* (licensing and regulation); it is run at county level by various corps of engineers depending on other ministries. It even played a negative role: its repeated claims that the agencies were its subsidiaries and, therefore, state institutions put the whole system under scrutiny of the European Commission, tracking potential government subsidies as breaching common market equal opportunity rules. A weak ministry, it insisted on top-down planning and *police* powers, which were outdated at the time of the development of contract policies and new governance.

water specialists and was reluctant to do so because this had not been expected: it would have inflated the overall budget without any obvious productive counterpart. After all, France is anything but an arid country.

Yet, France suffered polluted water resources. Thus, the creation of new water boards – the so-called financial water agencies – was viewed as a brilliant dual solution: i) the agents of the future water agencies would be paid directly by the budget of each agency, which would come from water users, and not from the central national budget; ii) for some years, these agents would not be admitted into the standard civil servants' promotional system. It would allow for a progressive and lengthy career integration in the national corps. This smart human resources policy was complemented by contract-based recruitments (similar to the usual applications in a private company). These additional people were not considered civil servants. I personally belong to this 'second class' staff. But not to worry: I learnt a lot about hydrology in arid countries (which is more difficult than in the temperate Seine river basin). I heard numerous edifying stories about politics and technology on the southern banks of the complex Mediterranean Sea. I also love the jasmine fragrance which reached Paris at the beginning of every year...

### **Taxing water both ways: in and out... but more and more**

In French water policy, the autonomy of the agencies is directly related to its budget construction. The law authorises them to charge the water users twice: first when they abstract water (groundwater or surface water), and second when they discharge used water which contains at least one pollutant.

It is clear that this approach to water taxes is not directly targeted to protecting the environment, but it is financially relevant, since it allows funding projects which can alleviate water scarcity and water pollution problems. A second rule of thumb in levying taxes is to constantly keep in mind the fact that the agencies' budget results from a multiplication: water budget = taxable base x tax rate.

The result is that instead of increasing the rate, one can enlarge the tax base. There are dozens of combinations, but they must be able to be added to one another. It is quite easy to add new parameters: water engineers and ecology-oriented media will obviously come in support. From a financial point of view, their demonstrative skills and anxiety with ecological hazards are the best support one can dream of. However, the agency must not levy too many taxes. An ideal number of taxes is seven. This is not only because seven is a magic figure, but because after seven, people have difficulty keeping track of when there are too many parameters. Over seven, a smart way of solving this difficulty consists in including one of the parameters in the volumetric water unit (cubic metre or gallon). For instance, if a city has not finished building its sewer network, its pollution discharge levy is multiplied by a 'collection coefficient' to tax it more.

Later, in a second stage, when people are familiar with this new tax base, it will be time to increase the overall budget. A well-known universal fiscal rule is implied: when making changes to a tax base, never modify its rate. On the other hand, when a new taxable item has been adopted, do not hesitate to increase its rate so that the end result is an increase in the overall budget.<sup>11</sup>

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<sup>11</sup> During the 1970s, (period of launching French water agencies), only a few parameters were used: cubic metre, suspended solids (SS) and a mix of 'oxidisable matters' (Chemical Oxygen Demand – COD – and Biochemical-Oxygen Demand – BOD). In 2012, the following changes can be observed: cubic metre, cubic metre for hydropower purposes, cubic metre for specific groundwater intakes, suspended solids, COD, BOD5 (after 5 days), reduced nitrogen, oxidised nitrogen, phosphorus, METOX (toxic matter indicator) and specific METOX, inhibited matter (for other toxic matter), AOX (halogen matter) and specific AOX, temperature (with regard to the heated discharge into the sea or river bodies). A specific tax is added in some large urban areas for updating sewer and sewerage systems.



### Tailoring water levies

The management of a French river basin agency is mainly based on a very simple balance. On one side, agency revenues are provided by the water taxes, paid by the users, and occasionally by certain financial revenues. The expenses provide for four types of subsidies and low-rate loans as follows:

- Water pollution control for urban, industrial and agricultural uses (which account for over 75% of total expenses).
- Protection of the natural water resource, and enhancement of the quantity/quality of water supplied (about 10%).
- Scientific studies, monitoring, communication (10%).
- Operating costs of the water agency, including salaries (5%).

A 4-6 year programme is drawn up, with the cooperation of cities, industry and farming activities. As usual, the Pareto principle holds: less than one fifth of the expected numerous projects (when ranked from the largest to the smallest) costs over 80% of the overall programme. If one or two very expensive projects are added, then higher revenues are needed faster, which means raising the water tax rate.

On the other hand, if the economic situation is depressed, the programme can be cut back through slowing down a small number of projects. Consequently, water taxes remain stable and can even be downsized. As these water taxes represent up to 20% of the price of drinking water paid by urban users, a less ambitious water programme leads to keep water plus waste water pricing stable, while a more ambitious programme logically leads to an increase in the price of water. The link between income and expenses must remain tight, because if the agency has levied too much money in advance, there is a serious risk that the government will take part of it for other purposes. And paradoxically, this indeed happened in 1998 when the minister of the environment was the 'green' Ms Voynet. And it brought some of the agencies like Seine-Normandy to be unable to fund the end of the ongoing programme, and to postpone it till the next one.

The 4-6 year programme can be adjusted through three possibilities:

- Modifying the extent of the waterworks and other connected projects requiring funding and completion.
- Adapting the revenues from the water taxes which are levied during this same period of time.
- Changing the level of financial aid granted for new infrastructures, and for the operating costs of those already completed.

Each of these items can be easily adapted to local and temporary situations: for instance, programmes were more ambitious in the 'enthusiastic' beginning, while they tended to be reduced since the 2008 financial crisis; taxes can be increased seasonally (e.g. protection of the aquatic milieu in the summer), or geographically (higher taxes upstream to keep the water cleaner);<sup>12</sup> subsidies can be temporarily enhanced to encourage more projects in a given domain (this was the case when, as CEO of Seine-Normandy, I supported global contracts including several individual projects for a better improvement of the aquatic environment: in that case, Seine-Normandy granted 10% more money to the global project).

In fact, there is a basic conflict between the government, and in particular the Treasury, and the agencies: the first one operates on a yearly basis, and wishes to curb all public spending according to its macro-economic indicators while the second runs multi-year budgets which can be adapted without

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<sup>12</sup> The money runs down with the flow. There are however exceptions when specific areas need to be protected as, for example, certain natural zones with rare fauna and flora.

giving beneficiaries the feeling they are being betrayed. The result of this opposition is the skill built by the agencies to let a multi-year water programme either grow or diminish. Adding or reducing a few important works or programmes under way is sufficient for coping with any actual difficulty – it is effective and, on the whole, politically acceptable. This is not the case when the cutbacks are made to a lot of small and inexpensive items, which will be strongly criticised by public opinion. Participative democracy in the *Comités de Bassin* protects the small users and their small projects. This is also why, in Seine-Normandie, the largest stakeholders, which are the Paris sewer service and the sewage treatment joint boards, have often been critical and voicing against Seine-Normandie.

### **Making the 'Polluter-Pays Principle' work**

'If you pollute, you pay; if you pollute less you get aid' is the slogan of the French water agencies. The same holds for water abstraction/consumption. Indeed, the acceptance, and even the support that the agencies obtained from water users are largely due to the possibility to retrieve the money they paid. The agencies' budgets link two policies:

- Levying of taxes, in agreement with the polluter-pays principle (PPP). 'If you pollute, you pay' is at least true for the pollution taxes but not for the volume taxes which only attenuate water wastage.
- Subsidising water infrastructure projects.<sup>13</sup>

The reason the PPP is difficult to implement is that reaching the tax level where polluters change their behaviour is usually politically infeasible. Until now in France, it is ten to a hundred times less expensive and technically easier to pay the full tax as an irresponsible polluter, plus (rarely) an added fine if legally considered to be a polluter, rather than to spend money and time on a pollution control plant or equipment. This is unfortunately true for all categories of water users: municipalities, industrialists and farmers.

In the river basin financial agencies, the admittedly low pollution/abstraction taxes allow to generate a subsidy which reduces the investment cost by 20 to 40%. So the burden on the user is lessened, and the system is able to generate trust. The result is that water users invest in pollution control even though it might not be to their short-term interest. And once they have invested, they pay a reduced pollution/abstraction tax, which compensates for their operation costs. If they manage to abate pollution by more than 85%, operation costs are themselves subsidised.

Playing with these rules, French water users can quickly turn into economic beneficiaries; in case they obtain high priority ranking within the water agency funding programme they will pay taxes at the full rate for a minimum period of time, and soon afterwards they will benefit both legally and economically. They will also improve their image and build arguments in terms of corporate social responsibility.

However, agencies' revenues from pollution taxes will eventually go down while subsidies and loans for pollution control will go up. This is why, to maintain or to develop their activity, water agencies are obliged to periodically increase the tax rate or enlarge the tax base (in 2012, French water taxes reached 15 to 20% of the price of water, while they were under 10% in the early 1970s). As a result, they have recently been blamed by some consumer and alterglobalist NGOs for making water charges unaffordable.

This gave the opportunity to the government and the parliament to partly re-centralise water policy with the most recent Law for Water and the Aquatic Milieu (December 2006). Arguing that under the

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<sup>13</sup> But this leads to operating like a mutual savings bank and it is contested by the Pigovian theoreticians: for them, it is the level of the tax which acts as an incentive to polluters, and giving them their money back leads to unnecessary investments. Yet Pigou himself was not against operating the PPP in a positive and subsidising way.

Constitution, all taxes should be yearly voted by the parliament, they put a stop to the water agencies' financial independence and gave (for so-called constitutional reasons) the power of decision to the national parliament. With the ongoing crisis, budget cutbacks are the common rule. And now the Treasury can manipulate the parliament to reduce the agencies' budget after it is voted. But if this happens, then eventually the stakeholders in the *Comités de Bassin* will distrust the system and the other stakeholders. Now the question is: are there winners and losers in the financing system?

### **Who pays for the water charges, who gets the subsidies and low-rate loans?**

There are many financial transfers among categories of stakeholders in a water agency programme, and this depends also on the location of funded infrastructures.

A common example is the money transfer between urban and industrial water users, and the agricultural users who pay little but receive subsidies that are higher than their own tax contributions. This mutual solidarity model (disabled people get more than they contribute) is politically rather well accepted in France when the beneficiary is rural. This is at least what has been observed over the past few decades. This is however progressively changing with the information that pesticides are dangerous, that the breeding of farm animals is a public disgrace. The fact that farming activities now exactly resemble industrial activities, also contributes to explaining the new reluctance of other water users to support a farming business which differs sharply from the mythical nature-friendly model.<sup>14</sup>

Sometimes very large cities provide a major part of the basin agency's income (such as in Paris and its suburbs where 10 million people live, i.e. above half of the entire Seine-Normandy basin's population). A certain degree of financial transfer, from the largest city to the smaller and sometimes tiny other towns, can be observed. Meanwhile, in other districts where the main urban areas are only medium-sized towns, the opposite trend has been noted. Revenues are mainly delivered by the smaller towns to benefit the few larger ones. Financial transfers from urban water users to industry took place at the beginning of water agencies' life. Industry is managed by engineers and accountants. They quickly understood the water agencies' rules. They consequently requested all the subsidies and loans they could get. On the other hand, municipalities are usually managed by elected politicians who require years to understand the system. They preferred to criticise it rather than use it to their advantage. They adopted a political pressure approach – a completely different culture – and were not used to writing technical reports, which needed skilled technical staff. Some years later, the difference between cities and industries became less obvious. However, since local authorities do not pay the water taxes themselves (it is the citizens who pay their water bills), they preferred to keep the tax high so as to get more subsidies for needed investment, while industry was happy to pay less and receive less.

But in the long run, all the constraints on the agencies to get their money and to spend it, resulted in a relatively equitable treatment of the various users' categories. Today, some residential water users associations and politicians complain that they pay up to 85% of the agencies' budget. But 75% of the money spent goes to improve water supply and sewage collection and treatment of cities. And, until very recently, the trust of water users in the system was evidenced by the relative consensus within the *Comités de Bassin*, which plays an essential part in the water policy arena.

### **THE KEY ROLE OF THE RIVER BASIN COMMITTEES**

For each of the six French water agencies, water policy is voted by a river basin committee composed of elected and nominated members.

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<sup>14</sup> When Michel Rocard was prime minister, I was the first to come up in a TV programme with the fact that farmers were polluters, and this was a scandal at some point in time. Things are slowly changing, but the farming lobby is particularly powerful.

These committees differ from one another according to the size and problems of the corresponding river basin. The Artois-Picardie Committee (the Northern agency and the smallest in France) consists of about 70 members.<sup>15</sup> For Loire-Bretagne (the largest basin), there are about 120 committee members (240 with alternative members).

In the beginning, these boards consisted of 3 tiers: government, local and regional public bodies, and industry. Today, five representative categories make up a water basin committee (also called: 'mini water parliament'):

- |  |   |
|--|---|
| • Government officials   | 1/5 (nominated)                               |
| • Elected officials (mainly mayors)  | 1/3   |
| • Water users (farmers, industry, water operators, professional fishermen) | 1/3 (elected among professional associations) |
| • Socio-professional bodies (such as unions)                               | 1/15  |
| • Other associations (e.g. environmentalists)                              | 1/15 (elected)                                |

Two additional remarks:

- During a voting session, government officials (1/5 of the total number of voting members) are in a clear minority. Thus the government is represented but its role is limited practically to that of an observer (which is quite unusual in France...).
- Associations are equally represented among unions (both rural and industrial) where environmentalists are in favour of an ecological-political approach. The latter are numerous and continuously complain about the modest place they occupy. The other categories seem to be reluctant to modify the current balance, arguing that the water agencies were created first and foremost to manage the needs of water users, and thereafter to protect nature, and not the contrary.

Government officials come from various ministries related to water: the ministry in charge of the environment and sustainable development of course, and also many other ministries such as public health, agriculture, industry, interior (in charge of municipalities) and tourism. One ministry carries considerable weight: the Finance Ministry which is as important as all the rest put together. Whenever economic issues are at stake (which happens 80% of the time in a water basin committee...), the Treasury takes the lead of the decision-making process.

Elected political officials (mayors, members of lower and upper Houses, etc.) occupy a large proportion of the seats. They usually belong to a political party (from left to right wings, as in the last national and local ballots). These varied political origins are of little importance to the water policy debates, and an outside observer would have difficulty guessing who is who when listening to the speeches. There is however one exception to this rule – the Greens, who often express a radically different opinion to their colleagues and are thus easily identified.

Industry is present (in France at least) in two opposing lobbies:

- The hard chemical, petrochemical, car, mechanics, and mining industries.
- The soft (supposedly) agro-industry which transforms crops and livestock into food.

During the first decades of the basin agencies' life, 'oxygen demand'<sup>16</sup> – an important way of taxing the industrial pollution discharge – was considered by the water community more dangerous for the

<sup>15</sup> Each member has an alternative representative, so the final number is double.

<sup>16</sup> In French, *matières oxydables*, or *demande biologique en oxygène*.

environment when coming from the agro-industry than from the chemical and similar industries (which consideration is, of course, false...). Thus, COD (chemical oxygen demand) was weighted 1/3 while BOD (biological-oxygen demand) was weighted 2/3. This meant that the charge paid by the agro-industry for one unit of discharged oxidised matter was twice that paid for a similar unit discharged by the chemical industry! This situation has changed recently, but one can imagine how troubling it was for the young professional I was at the time. The vote of an assembly took precedence over a scientific approach. Was democracy competing with science? Or rather was science subordinated to politics, where fake arguments were used as justification? It was 'a difficult pill to swallow'...

However, this is now just a bad memory. Today, a more balanced situation prevails between scientists and politicians, even if scientists do most of the writing and talking while politicians take the decisions and actions. The opaque role of EU legislation makes this ambiguous relationship more complicated. However, each side still derives a guilty pleasure from each new trick that is invented. Most of the agencies have set up scientific councils to help the committees with complex decisions.

Despite these criticisms of the politically biased procedures for setting French water policies, the invention of the water basin committees must be praised due to the human dimension that could be developed within them.

### **Water policy and French gastronomy**

In France, for the success of any business deal linked with politics, the indispensable perk is a gastronomic satisfaction. Whatever the difficulty to be solved, such as increasing taxes, deciding on share of burden, setting the next budget, spreading out the subsidies or (exceptionally) exempting a certain category of users from the rules; in a nutshell, in actually managing water policy, one could count on a good meal.

But first of all, it is important to remember that all the decisions must be anticipated before the actual meeting when they are to be debated publicly. When it is well prepared, a meeting just confirms the state of affairs. And like the theatre, every performer either for or against the decision is perfectly aware of all the implications, and of the final outcome.

The aim of the meeting is to ensure that everyone can publicly argue either for or against a project, so that the discussions are recorded for the future. Any change to the final decision which could happen during the meeting is rare and usually ineffective. It betrays the fact of not doing homework. The main role of the meeting's secretary is to organise the agenda so that every participant can derive some satisfaction from it. This usually implies that the items on the agenda have to be sufficiently numerous in order for people in a minority position to score at least a limited number of points.

Simple items where discussions are not too controversial are presented at the beginning of the meeting (on time, but with a limited number of attendees due to late arrivals..). These simple items typically lead to lengthy debates. Then, when the stakes are low, it is easier to argue and for this very reason, many attendees tend to take the floor. Thereafter, when serious questions come up, the meeting is already running late because discussing the small items would have been very time-consuming... Lunch can be postponed for a quarter of an hour but not longer because it will be a typical (and usually good) plenteous French meal. Something that cannot be shortened, that includes a few drinks, three or four dishes, coffee and sweets, and this takes at least an hour and a half, if not two when the meeting ends late. Consequently, the last and most important items on the agenda are debated quickly. The pros and cons are reeled off post-haste. Decisions are fixed and the result is a foregone conclusion. When necessary, any remaining details can be bargained during lunch.

For non-French readers, this must appear shockingly cynical but I would like to refute the charge before judgement is passed. Do not forget Pareto's Principle: 80% of the items on the agenda (actually nearer 95%) only represent 20% (or less) of the overall financial level of the meeting. Only a few items

require a real political decision and a 3-hour meeting is too short for this kind of debate which demands weeks or months. So the final meeting is little more than a pro forma decision process.

Another justification is the excessive (at least for one's diet) French meal. This is, in fact, a mark of friendly consideration. If a few sandwiches and a cup of coffee are offered in France, this clearly means that the meeting was a waste of time because only scientific matters were presented (i.e. with no immediate financial consequences) or worse, because no budget was at all available. Financiers and politicians are not too fond of theoretical discussions.

### **Basin committee venue and meetings preparation**

Another rule of thumb in organising a basin committee meeting is choosing venues in various places within the river basin area, or sometimes further afield. This is the proper way of paying due attention to the visiting members of the committee (their role in water policy will be magnified in the local press) or of stressing the importance of the meeting when it is held outside the river basin, such as in a foreign country (in Europe or south of the Mediterranean for example).

All this is of course costly but is still cheaper than an opinion campaign which is usually not that useful. It builds good relations among members, progressively creating a real spirit of partnership, based on shared and pleasant memories.

An average number of 100 permanent members plus another 100 alternative members within the same basin committee are far too many to be properly managed. Subcommittees need to be created: one focusing on the balance between income and expenses during the current year or during a 5-year programme; one for spending rules in terms of subsidies and loans; and another for promotion, advertising, and communications. When necessary, a few innovative workshops can be set up: for overseas aid for poor countries as regards water and sanitation, research and development (R&D) funding, etc.

Each subgroup will number under 20, and they are supposed to be relevant and representative for the issues they deal with.

Managed by the water agency that decides on the yearly schedule and prepares the agenda for each meeting, these working groups can act as effective go-betweens for the basin committee on the one hand, and the agency's board (*conseil d'administration*) on the other.

### **The agency's board**

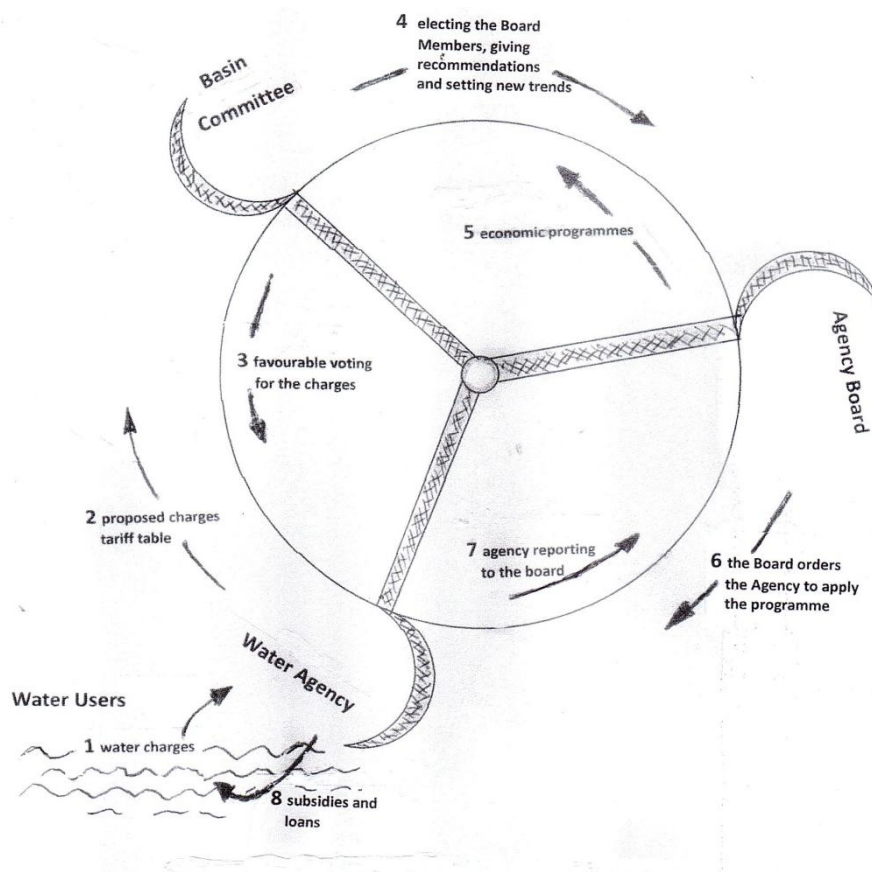
A few words about this board, which is like a Russian doll of the committee, and meets monthly: of the 100 or so permanent members of the basin committee (and only them, no alternative members), less than a quarter are nominated or elected as board members of the water agency, according to various rules. Government civil servants count for half the total number of seats. The chair of the board is attributed to an extra-government personality: frequently it is the governor of the most important administrative entity within the river basin (e.g. a regional prefect). Consequently, the majority of the seats on a water agency board (i.e. over 50% of the roughly 25 seats) will go to government representatives. Other categories of water users share the remaining seats of the weaker half of the board. In practical terms, for an industrialised basin, this means: four politicians, three industry managers, one farmer, one water operator, one representative of civil society (association) and one ecologist.

### **The decision water wheel**

Now let us imagine the main wheel of a big water pump (see Figure 1). Symbolically, the water users are represented as the water body in this diagram. There are three pots on the wheel: one for the water agency, one for the basin committee, and one for the agency board. If the wheel turns clockwise,

according to the basin committee agreement, the water agency levies various taxes from the water users (1). This is possible because the agency had previously proposed a charge chart (2) to the basin committee, which has been endorsed by its members (3). Let us continue to turn the wheel clockwise. With the exception of the nominated board members (half the number plus one), the remaining part of the board is elected by and among the basin committee members (4). The latter receive recommendations and information on key trends from the committee (4). The entire board (elected and nominated members) studies the committee’s proposals and sets up an economic programme (i.e. with a view to balancing probable expenses and future incomes), so that the committee votes in favour of it (5). Once the programme is accepted, the agency board orders the agency to apply the various aspects of the programme that shape actual water policy (6). The agency is required to report later to the board on how these orders have been carried out (7) as regards the subsidies and loans granted for various purposes (water supply, pollution control and sanitation, environment conservation, desalination, etc.) (8).

Figure 1. The water agency 'pumping system'.



Tasks (2), (4) and (6) are controlled by tasks (7), (5) and (3) when they are checked by an anti-clockwise movement. This overall equilibrium leads to economic contribution from all the water users (1) and allows some of them to receive financial aid after selection through an appropriate economic programme (8).

Three kinds of control are implied:

- Direct democratic control of agency action (budget) by the basin committee which is representative of a majority of elected water users – tasks (2) and (3).

- Adoption of the water programme through bargaining between the government-nominated members of the board and the elected members – tasks (4) and (5).
- Standard management control of the agency by its board – tasks (6) and (7).

What is the weak point of such a system, and where is it located? The answer is obvious: the wheel axis could break. This is where the national administration level is situated. Rust can develop, or the axis can be damaged by legislative grit. An example of 'rust' is the time-lag required by the French administration to understand and apply new European water directives. 'Grit' that can be poured on the wheel axis can be financial difficulties, or postponement of the voted water programmes due to short-term political considerations (such as sector charge cut-offs just before a national ballot for example).

When the wheel spins quickly, minor consequences of the above difficulties can be observed. This means that the director of the water agency (which I once was) is very active, so that:

- Charge levying (1) and economic aid (8) are properly and efficiently managed.
- The basin committee agenda and the various schedules of its specialised workshops are fixed for the coming 12 months (with the necessary updating every trimester), so that (2) and (3) are easily completed.
- Simultaneously, agency business must be reported on time to the agency board – (6) and (7).
- In his capacity as secretary of the board, the director of the water agency must also develop good relationships between the basin committee and the board, who are mutually informed about their respective wishes and sometimes demands – (4) and (5).

All this is very time-consuming, involving attending 100 to 120 small or large meetings in a year of 220 working days, and is also exhausting. But it does guarantee a certain momentum to the entire system. When meetings are less numerous, the gyroscopic effect of the wheel is endangered and everything can break down...

In a water agency, the director is fortunately not alone. His/her senior management staff (say about a dozen persons) are always on call to cope with the preparation and venues of all these decision-making sessions. Few are held at headquarters, and as mentioned earlier, meetings can be located throughout the basin area. Management is made easy when local offices of the agency have been set up beforehand.

Imagine a water agency consisting of a total staff of 400. A sensible plan is to locate about 180 of them at headquarters for example, and five times 44 people in five local offices spread over a territory of some 100,000 km<sup>2</sup>. It is a question of juggling...

The administrative cost of this kind of arrangement can be limited to 5% of the total water agency budget. But whatever happens, the golden rule is to spend less on administrative costs than the central State administration does to manage the national taxation system!

### **Democracy at stake**

If there is but one single key aspect to be kept in mind about the organisation of French water policy, it would be the active presence of a basin committee within each of the six main water agencies. Water agencies are nothing but administrative (sometimes bureaucratic) bodies and can be found the world over under a diversity of forms. The appropriate professionals and a few specialised water experts work together, and as professionals and experts, they know how to make a plan. They pay little attention to outside demands, either because they consider such demands impossible to achieve, or because they entail listening and this is perceived as an irrelevant waste of time.



This contempt for water users is thankfully tempered by the basin committee members who are in charge of controlling the management of the water agency (through the elected/nominated board) and of driving water policy into new areas (when the water programmes are voted).

Elected members of the basin committee are not usually water specialists. And for this very reason, they ask the right questions. Some questions can be considered as ridiculous because they are physically or economically erroneous, but these are not very frequent. On the other hand, they always create the opportunity to deliver more transparent and sounder information, in place of a mere amused technocratic reaction.

Many questions from the basin committee are naïve and down-to-earth, which means that they are not far from some aspect of the truth: why are the proposed technical solutions so sophisticated and expensive? Why are bids for local waterworks always attributed to the same companies? Why is the price of water so obscure? etc.

Never (or rarely) do such questions come from the water professionals who are held to adhere to 'the law of silence' and remain hypocritically polite. Thus, candid people can be very useful in changing attitudes and practices. But sincerity is not however a permanent quality and after about three years, candid people become as cautious as the professionals themselves. They are no longer frank and their language becomes politically correct, or worse, they become mute. Thanks to new ballots, it is time they are replaced.

The ability to explore new directions for water policy also exists thanks to proposals delivered by the basin committee. Examples are numerous: changing relationships with farmers (who remain reluctant to pay for water) so that they gradually accept to change their attitudes; sustainable agreements combining different uses (such as hydro-energy, fishing activities, domestic water supply) and minimising water conflicts; water solidarity initiatives in favour of poor populations in developing countries; harmonisation of water quality programmes, and solid waste management, etc.

If it is well managed, the basin committee's creativity is far superior to any standard administrative authority.

### **KEEPING A CEO POSITION IN A HOSTILE ADMINISTRATIVE MILIEU**

When I was nominated CEO of the Seine-Normandy Water Agency, I did not have the right profile. I was not a civil servant (and have never been one), my academic studies (civil engineer in aeronautics and an economist) were a far cry from the hydro-sciences, and my job at the time (strategic studies consultant for a large bank and several industries) was considered rather strange, even though I had spent ten years previously as a water engineer in the same river basin company.

I was approached for the CEO job by the French Prime Minister at the time because 18 years earlier this man, Michel Rocard, had joined the Finance Ministry and had been charged to audit the newly formed water agencies and to write a hostile report. When I was a fresh-faced engineer in 1971, my boss ordered me to bring coffee from time to time to this fearsome inspector. Of course, I also had some stimulating talks with him but was amazed that he could remember me after such a long period of time. Indeed, he had become a supporter of the agencies!<sup>17</sup>

I was obviously flattered to return to the water agency I had left ten years earlier. My job at the time was technically unrelated to any water business, more specifically to any public or private water issue. All my clients belonged to the private sector (you are paid faster, which is very important for a consultant!). I knew perfectly well that I would not be easily approved by the water administration tycoons.

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<sup>17</sup> Related in Michel Rocard, *Si ça vous amuse... Chronique de mes faits et méfaits*, Flammarion, Paris, 2010. See pp. 403-414 'Comme un poisson dans l'eau'.

Despite this lucid analysis, I accepted the job for the fun of it, thinking that it was exceptional for a modest consultant, with no political commitments, to be recruited for such an official position. I made a bet with myself that I would probably hold out for 6 months and then would be fired and return to my clients, who would forgive me for this unfaithfulness.

I finally stayed for about 10 years in this position and it was a very interesting experience. So I should like to share it with those courageous readers who have followed me up to this point.

### **Some basic rules for water management**

First of all, I would like to stress that relating this chaotic career pathway has nothing to do with any romantic satisfaction or vain gloriousness (at least, I do hope so). My intention is to show that weak professional knowledge and a professional profile considered inappropriate can be mitigated by other skills, namely listening to staff problems, paying sufficient attention to the financial viability of the company, and lastly playing the fool to humour the water milieu.

Therefore, I offer four recommendations that should be followed to the letter:

#### *Scientific and technological knowledge*

The basis of a water policy has to rely on solid knowledge in the various fields of water science: hydrology, environment, agronomy, demography and sociology, economics and financial studies. Technology is also very important: water supply techniques, irrigation, waste water treatment and sewerage, solid wastes and the fate of residuals, energy and the sustainable development of all the previous aspects.

Personally, as mentioned at the start of this paper, I am not a specialist in these matters. I did however manage my time so that a quarter of it was devoted to the debate about water science and technology. Hence, valuable opportunities occurred for learning about new concepts and the questions arising from them. Meetings of the basin committee, of the agency board, numerous working subgroups, and internal water agency meetings all provided stimulating possibilities for developing scientific knowledge. The only problem was deciding how many meetings my agenda could cope with.

A suitable ratio for time spent on science and technology is around 25% of the overall available time. Over 25% is probably fun for scientists and water engineers but cuts them off from the water users. It is therefore not politically sustainable. Less than 25% means the water agency you work for has adopted the wrong costly solutions after a period of three years (and a certain amount of procrastination). Beware of missing the boat of necessary technological change.

#### *Listening to staff*

When I was put in charge of a water agency, I never thought I would turn into a genuine chief engineer (like F. Valiron was). I was just the boss of a number of chief engineers, accountants, economists, socio-psychologists, communications and marketing managers, and so on. I was expected to give orders, and never or rarely to actually achieve anything.

For me, the best way of giving orders was to listen to the orders that I was supposed to give from those in charge of putting them into practice. This consists in arguing, evaluating the pros and cons, indicating the relative importance of the goal, and finally controlling the outcome, and it does indeed take up a lot of time, probably about 25% of the overall available time per year.

This is much more than the standard orders that are written down in less than 30 words or have been formulated during a three-minute fleeting appointment. As a matter of fact, my predecessor was a good engineer, but he managed the staff so poorly that they went on strike!

During the time I spent with the staff (individually or with groups of 5 to 20 persons), I listened 80% of the time, just took notes, and debated shortly for the remaining 20%. My role was to try to solve the

staff's problems, or at least to share their problems so as to show them that their difficulties were not neglected.

Most of the time, the questions referred to their private lives, whether men or women, which always had a great impact on their professional lives: health problems, family difficulties, social cares, etc. I always kept in mind that I was not supposed to replace the head of human resources, but had to avoid giving the impression that he/she felt that I was not interested in (or able to deal with) human problems.

I usually delegated the operations, but never decision making. Assuming responsibility is for sure the best way to remain in charge.

### *Conserve the water money*

A third quarter of time is devoted to accountability and financial matters. A French water agency belongs of course to the state but it has to be managed like any private company, with a view to becoming more efficient than the State administration itself.

It is not a question of false pride. It is just a management requirement. The budget of a water agency (when it works properly) is not supposed to be set by the State (and is sometimes the opposite, when a young water agency transfers a little money to its elderly parents, i.e. the central administration).

The consequences of a degree of financial independence are numerous. As in a private company, I was obliged to keep an eye on the short term (for example, monthly payment of staff salaries and social security contributions; a lot of hassle for a meagre end result...). The other eye was focused on the following trimester and the current year (never paying the invoices too quickly, always remaining prudent about expected income). A third blind eye was open to guessing at the long-term prospects.

Trying to focus simultaneously on three different time horizons can often cause headaches. As for all economics matters, finance (i.e. when economics meets the proper time table) is submitted to a lot of political pressure. Unions complain in the short term, legal constraints arise in the middle term, and public and private political lobbies watch over the long term.<sup>18</sup>

For the head of a water agency, the resulting risks are strikes in the first case, fines in the second case, and... being fired at the end.

The best course of action in my opinion is to remain phlegmatic at all costs, and to change the agency's strategy several times during the ongoing financial period. Anticipating the future is a source of numerous worries. But every time I felt threatened, I tried to change my aim. A tiring job.

### *Let the water show go on!*

Now for the last 25% of the available time, and the nicest: communicating, playing the fool (i.e. surprising other people, whether supporters or enemies).

For a water agency in charge of financing around half the cost of all kinds of waterworks, communication is easy because it is positive. The job entails coming to terms with the associations' fears about the future of the water resource (shortages, flooding, and harmful pollution). Being positive does not mean contradicting the associations but steadily supporting them: it is because they are supposed to tell the truth that the price of water and taxes is so high!

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<sup>18</sup> About every three months, unions threaten to go on strike: wages are too low, schedules are excessively long, or both. Every year, new rules are developed by the European Union or the central government, which undermines the stability of the five-year programme which the agency is supposed to implement. In the long run, the threat comes from unspoken long-term policies of the water companies (changing technical standards to induce additional business), or of some of the corps of engineers (e.g. unsuspected alliance between the Corps of Mines and the Finance inspectors in a common ministry of finance and industry: it eventually resulted in a negative report against the agencies, which they never recovered from).

In order to mitigate their fears and instil some hope, the positive arguments are the technical achievements to be promoted, the optimisation of water use (less water and cleaner use, more crop per drop, etc) to be encouraged, and the improvements in water R&D to be brought to the fore, i.e. stressing that progress is under control.

Never place the water agency at the centre of the message. Only promote the water users (i.e. those who vote in the basin committee). Organise competitions and awards (for the best treatment plant, the cleanest new industrial technology, the exemplary irrigation method, etc). Bring in the media a couple of days before every event. They are not too keen on positive communication but appreciate it when their job is made easier. Prefer local media to national or international media, because the latter two are the prerogative of the appropriate minister. It is necessary to avoid any confusion which could be perceived as competition.

All this is time-consuming and requires constant creativity and self-control. The head of a water agency must entertain and retain the sympathy of the public. Entertaining means staying humble and being amusing (for most civil servants are contemptuous and dull). Sympathy means immediately sharing it with agency staff and board members.

Press conferences (four to six per year), public meetings, books and video material, water instruction for schoolchildren and students, twinning agreements with foreign river basins (never with other countries: this is the prerogative of the minister), are a few examples of how to organise a 12-month agenda, which is adapted every month.

In short, four main tasks must be kept in constant equilibrium: 25% for technologies, 25% for the staff, 25% for finance and 25% for communication.

It is a dynamic and sustainable management method, since each of the above percentages can become between 20 and 40% in one particular year. As for other professional sectors, there is a mood for water activities which you can either go along with or, better, create.

### **Use the Deming water wheel**

Another piece of advice for the reader is theoretically very common (when it is known) but in practice rarely applied in full: it is called the Deming<sup>19</sup> wheel and consists in adhering to a strict sequence: PLAN, DO, CHECK and ACT, then repeat for as long as you can.

PLAN means programming future action.

DO corresponds to real achievement over a period of time.

CHECK is controlling the differences between present completion and previous forecast (with the corresponding degree of public satisfaction).

ACT leads to moving people and programmes before starting a new PLAN period.

Here again, it is necessary to spread one's efforts among these four tasks.

PLAN does not present any difficulty. Filing cabinets and computers are full of water plans which have never been developed. The real constraint is to limit their number and select the best, discarding the rest. Selecting is always possible; discarding is much more difficult and unpleasant.

DO can be observed whenever money seems to be available. The main problem here is to do things on time and not delay them by several years (frequent for large waterworks). Doing when the mood has changed, or, worse, after a change of the users or the usefulness, is always a waste of time and a financial disaster. Any project that has been delayed over half its required building time should be reconsidered or rejected.

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<sup>19</sup> William Edward Deming, *The new economics for industry, government and education*, MIT Press, 1993 and 2000.

CHECK is about control. Are the users happy? They rarely are. Why? Which improvements can be suggested and what would they cost? For users, any water plan is greeted with excessive but ignorant enthusiasm, and quickly followed by bitter disappointment. This failure does not occur when an important project is planned between the waterworks builders and the water users, where the objective is to find together the best compromise so that the solution lasts more than only two or three months. A common example is the difficulty that users have in understanding that the new water supply will cost more than that promised earlier on. And when this happens, time has to be spent for explanations in order to overcome the difficulty.

ACT requires some courage before formulating new plans. Time has passed; problems and people including oneself have changed. The French saying 'never change a winning team' is absolutely wrong. Never repeat identically. Adapt to the new context.

### CONCLUSION TO PONDER

These humble guidelines are not everlasting. Everyone suffers from fatigue eventually, and water users, even if they are satisfied in the main, get bored. In the end you get fired. This happened to me of course: I ceased to please and lost the required confidence.<sup>20</sup>

The water wheel (see Figure 1) broke down and needed repair.

After almost ten years in the job, I had to move on quickly and discovered that it was not so easy. The network I had managed immediately ignored me and transformed itself into as many spare parts as needed to build a new wheel. A logical conclusion indeed. The new leadership was intent on developing new policies which would appear different to mine. And at least for the first revolution of the wheel, this was wise.

Thus, nothing can be fixed for ever. But no worry: water is a basic need. Everyone can have the opportunity of serving the cause in the most appropriate manner. A good water professional never goes under, never sinks but always swims...

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<sup>20</sup> When I was appointed CEO, I managed to convince the government and the agencies that the amount of taxes had to be doubled if France was to be able to implement the Urban Waste Water and the Nitrates Directive. Probably the resulting increase was too sharp and I was criticised as too greedy. This did not prevent France to be sued by the European Commission, and eventually condemned by the EU Court of Justice, for failing to meet the deadlines. And then, when ten years later I tried to block the government's project to merge the agencies' taxes into the Treasury's budget (via what they called the TGAP, general tax on polluting activities), I won but was sacrificed for lack of support from the water community.