

# WATER RESOURCES MANAGEMENT IN FRANCE BASED ON SOLIDARITY THE EXAMPLE OF THE RHÔNE MÉDITERRANÉE & CORSE BASINS

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#### **Abstract**

French river basin organizations such as the Rhône-Méditerranée & Corse (RM&C) Water Agency have been practising Integrated Water Resource Management (IWRM) for more than forty years: watershed area of intervention, across administrative traditional territories; monitoring and objectives for coastal, surface and ground water resources; information and decision process concerning the projects and involving the water stakeholders of the whole society: municipalities, industries, agriculture, tourism; economic instruments.

Methodologies and practises have been improved on the basis of the successes or the failures of every six-year plan. But the system is being deeply revived, spurred on by the European Water Framework Directive (WFD): the objective is now (i) to involve the public and water stakeholders in the highly ambitious recovering of (ii) an "ecological" status for all water bodies, within 2015, (iii) consistent with economic development and risk assessments.

In order to reach this new objective, the Water Agencies actions will have to be funded, even more than up to now, on ethic aspects linked with the three items strengthened by the WFD:

- (i) Public participation and water actors decision process. The production and delivery of information about water resources situation, pressures (abstractions, discharges, hydraulic modifications,...) on water bodies, impacts of different projects will be developed with the utmost transparency and will be the basis for concerted decisions about water policy, environmental priorities and financing. Different manners of raising awareness, dialogue or implication and decisions will be used, depending on the type of interlocutor: general public, pupils, NGOS, water actors, decision-makers.
- (ii) Ecological status. The objective is no longer limited to the quantity and the quality of waters but includes natural hydro morphology and flow regimes of rivers, wetlands and fauna. The modesty in front of the complexity of Nature and in front of the uncertainty of Future is a more useful principle than pride and arrogance.
- (iii) Socio-economic instruments The polluter-payer principle is fundamental to gather the financial means that will allow the IWRM to be efficient. But it is also a non expensive instrument which is broadly-accepted because funded on justice.

All these ethic aspects can be summarized by the principle of solidarity: between upstream and downstream water actors; between individual and collective interests, between present and future population.

## Key words

Water resources management, ethics, Rhône and Mediterranean Basin

## 1 Implementation in France of an integrated water resources management (IWRM)

#### a. original situation of the aquatic bodies and institutional IWRM organization

In France during the sixties, the pollution of some rivers had reached such a level that it was felt as an obstacle to economic development or to public health. Thus, the Financial Basin Agencies were created in order to improve the environmental situation. Although the concept of sustainable development had not yet been thought up at that time, the French Agencies had all the characteristics of sustainable development organizations, i.e. well-balanced environmental, economical and social activities: the Financial Basin Agencies indeed had to reach environmental objectives, they used economic instruments supposed more efficient than the traditional discharge permits, and they were managed by a democratic representation of all water stakeholders.

Following the first water law of December 1964, a corpus of legal texts gave the basis for these new organisms. Their territory was a water catchment area and this was technically sound when dealing with pollution problems caused by upstream discharges.

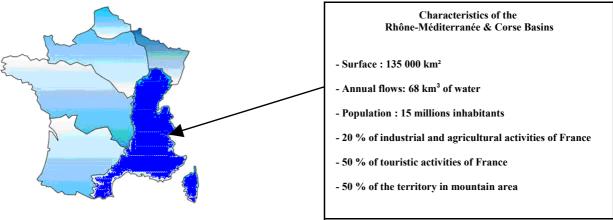


Fig 1: Location and characteristics of the RM&C Basins

Their governance was organized around a specific authority called Basin Committee, composed of three distinct colleges of water actors: State administration, municipalities, and merchant activities. In the Basin Committee, each category has one third of the voting rights: no one is able to impose his own opinion; everybody, including the State representatives, has to come to an agreement.



Fig. 2: RM Basin Committee Composition

### b. evolution and efficiency

After a two-year period of juridical and technical preparation within a national commission, the six Financial Basin Agencies started to recruit their staff and followed up their common works. They were wise enough not to interfere with the pre-existing State administration's activities, like water discharges permits; they focused their energy rather on the lack of financing mechanisms: they charged the municipalities and the industries with environmental fees based on the amount of pollution discharge into the natural waters (rivers and lakes, ground waters, and sea). In order to win local authorities acceptance, the pollution fee for the domestic water cycle was charged to the consumer through the water bill, a discount being given back to the municipality depending on the performance of each de-polluting system.

The amount of these fees was entirely gathered by the Agency and used in order to finance sewage and waste water treatment works for industries and towns. In the Rhône Méditerranée & Corse basins, these pollution fees increased from the 1970's (140 million euros in 1980 - present value) to the 1980's (160 million euros in 1990 - present value) and then rose considerably up to the beginning of the 21<sup>st</sup> century (300 Million euros in 2002). Such an increase was necessary to provide for the growing needs of water infrastructures, because of the national development (economic activities, population growth from 11 to 15 million inhabitants) and because of the European standards (Urban Waste Water Directive of 1991).

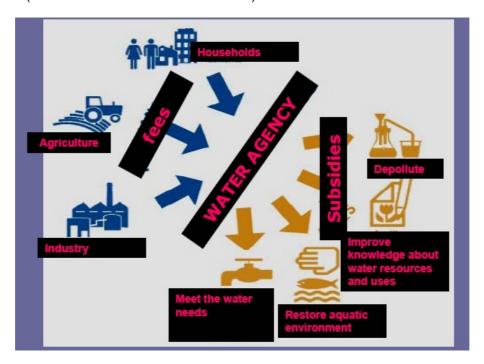


Fig. 3: Financial cycle prompted by the Water Agency

This increase was made possible by other law evolutions like liberalization of drinking water prices, decentralisation (1982). The pollution fees system was enlarged to cattle-breeding activities in 1994. In the same time, the Agency has developed a similar economic instrument dedicated to water resources and water supply management: fees based on the volumes of water abstracted or diverted from the natural water resources and subsidies given to water treatment works, dams and transfers of water or water savings operations. The objectives for the basin and priorities but also the methodologies and practises have been improved on the basis of the successes or the failures of every five-year plan called "Program of intervention".

The second water law (1992) was also an important step, because it gave to the Agency the role of producing, with the Regional Environment State services, a master plan concerning every kind of water use or water bodies of the whole basin and not only problems of industries or municipalities water works. In the same time, the Financial Basin Agencies took the name of "Water Agencies" so that it becomes clearer that they were in charge of a global water resources policy.

This institutional system is generally considered as a success not only concerning the mobilization of financial means but also concerning water resources quality (reduction of organic pollutions in many rivers) and availability (reduction of water scarcity). On the other hand, some environmental problems have not been mastered or have appeared more and more acute: diffuse pollution of agricultural origin, hazardous substances, and negative impacts of hydro morphological modifications.

Moreover, the financial means allow the Water Agency to implement rapidly complementary actions such as the monitoring of water resources and discharges, the raising of public awareness and the setting up of water management plans or local dialogues (basin policies and director schemes, resolution of local water conflicts).

The financial system of the Water Agencies has showed a real economic efficiency: the industries and municipalities use the grants given by the water agency (in general 30 % of the total cost, some times more) and the annual fees encourage them to maintain their environmental performance. Even if the total amount of fees paid by the water consumers and industries is the same as the total amount of financial grants they receive, the balance-sheet in the long run is different for each individual water stakeholder, depending on his own efforts. The actors that invest in the best devices and more rapidly are the winners; the less reactive instead are the losers.

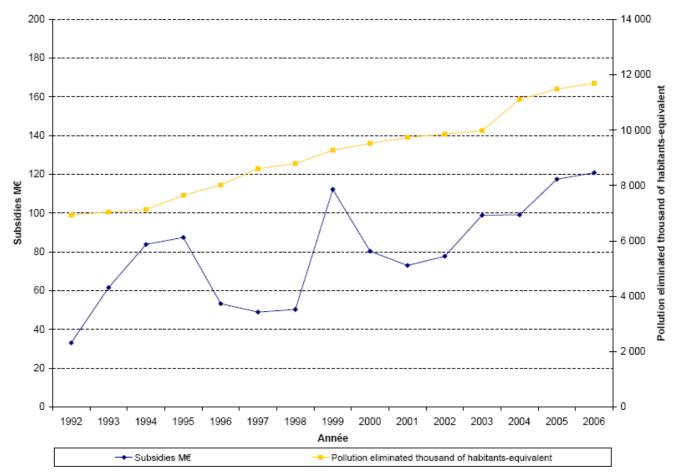


Fig. 4: Evolution of subsidies and performance of waste water treatment plants in RM&C

## 2 On-going reorientations

The new European Water Framework Directive has been renewing the water resources management all over the water catchment districts of the European Union. In France, the basin authorities are already in place with a long-lasting experience of consultation or dialogue, mobilization of huge financial means and environmental monitoring and planning. Anyhow, the ambition of the WFD is very high since the aim is to recover the good ecological status, not only the good chemical status, for most water bodies within 2015 or 2021. The French Water Agencies have to deepen their water resources monitoring, to boost some actions like re-naturation of rivers and preservation of wetlands, promotion of no-pesticide agriculture, to accelerate the financing of the last waste water treatment plants and networks, and to take more into account public advice and economical constraints.

The new law on water and aquatic bodies (December 2006) has enlarged the missions of the Water Agencies, modified the composition of their Basin Committee and updated the basin water resources master plan content and the six year program of measures in order to achieve the WFD goals. At the same time, this law has deeply changed the water fee system. Some changes will not help the fees to become better instruments from a pure economical point of view: for example the new fees on cattle-breading activities won't be based on pollution discharges any longer, and the average level of payment will become ten times lower and not significant to most farmers. But on the other hand some changes will address new "polluting" parameters (for example a new fee based on obstacles to the fish and to the sediment circulation in rivers); the Basin Committee will be able to modulate the level of the fees on territories where there is a risk of not reaching the water bodies objectives, and the recovery and control procedures will be harmonized with the State's fiscal procedures.

## 3 The Water Agencies actions are founded on ethical aspects

### a. fundamental ethic principles according to UNESCO

The ethic principles agreed on by recent international seminars are the following (in thick letters), as far as environment is concerned; following that, each principle has been detailed, for water resources, by the "world ethic commission on scientific and technical knowledge" of UNESCO with the following words (underlined), which are easily related with some long-lasting practices of the French Water Agencies:

- 1. **Respect of life and biodiversity**: <u>human dignity</u> (the right to have access to water). The basic objective of each Program of intervention has always been to meet the environmental standards and the water uses as well (water supply, irrigation, aquatic life, recreational activities etc.),
- 2. **Sustainability of the biosphere**: water resources as <u>common goods</u>, <u>solidarity</u>. The composition of the Basin Committee and the polluter payer principle are based on the interdependence between riparian activities or between upstream and downstream uses of water,
- 3. **Environmental justice**: <u>equality</u>. The different water actors are able to express their needs within the planning process, the rules of the collection of fees are strictly the same for everybody, as it is in any fiscal policy,
- 4. **Precautionary principle**: <u>wise management, transparency</u> and <u>universal access to information</u>. The planning process considers the long-term effects of the Basin water policy; information about the environment is available to anybody who asks for it or on line on the web site of the Agency,
- 5. Another item, well-known in the water community even if it was not stressed by the UNESCO seminar about environment, is **responsibility**: <u>autonomy</u>, <u>participation</u>. The decisions are taken by those who will suffer the consequences, for example the level of the fees or the master plan priorities that will prevent some territories from haring access to specific financial helps dedicated to some rivers or aquifers.

## b. How some of these ethic principles are strengthened by the implementation of the European Water Framework Directive

The French IWRM is being deeply revived, spurred on by the European Water Framework Directive: the objective is now (i) to involve the public and water stakeholders in the highly ambitious recovering of (ii) an "ecological" status for all water bodies, within 2015, (iii) consistent with economic development and risk assessments.

It happens that these three items strengthened by the WFD will lead the Water Agencies to carry on actions funded, even more than up to now, on ethic aspects recalled in § a:

I. Public participation and water actors decision process. Firstly, the production and delivery of information about water resources situation, pressures (abstractions, discharges, hydraulic modifications,...) on water bodies, impacts of different projects will be developed with the utmost transparency and will be the basis for concerted decisions about water policy, environmental priorities and financing. Within the framework of a basin scheme concerning data on waters, the Rhône Méditerranée & Corse Water Agency already produces information upon quality of surface and subterranean waters, puts it into data banks and gives access to the data to everyone who asks for them. This practice of universal access to ecological information has been confirmed by the Aarhus convention. The annual expenditures of the Agency have risen from euros 2.5 million / year up to 5.3 in order to meet the WFD water resources monitoring requirements. The data representing 1500 000 results per year are available on the website <a href="http://www.rhone-mediterranee.eaufrance.fr">http://www.rhone-mediterranee.eaufrance.fr</a>; there have been more than 55 000 visualisations of site pages (increasing at a rate of 14% each year) and 17 000 downloads of data.

Secondly, different manners of raising awareness, dialogue or implication and decisions will be used. depending on the type of interlocutor: general public, pupils, NGOS, water actors, decision-makers. The Basin Committee is already a place where the water policy is being discussed by representatives of all water actors; they are aware of water issues and their role is not limited to giving advice since the decisions they vote will apply to themselves, for example the level of the fees. As said above, the State services do not have the majority and the decisions have to reach a consensus or at least a majority, just like in democratic parliaments. To go further, the WFD brings the consultation of the public as a new requirement. The first public consultation on the water resources master plan of each basin took place in 2008 in France with three different forms: questionnaires sent to households, same questionnaires on-line on different public institutions websites and various local events like meetings or exhibitions. A total of 28 million of paper questionnaires were sent and 387 000 responses were collected, showing instructive results: the answer is mitigated concerning the objectives proposed for the master plan by the Basin Committee (they are globally validated but almost half of the people consider that there is a lack of ambition; there is a high expectation of more severity towards polluters, mainly farmers and industrialists; the willingness to act is very common, for example in saving water by taking care of their own consumption, but on the other hand, the reticence is practically unanimous faced with the prospect of an increase of the households water bills.

	Consultation	Tel. survev				
Objective for 2015		, ,				
Reasonable	48%	53%				
Too ambitious	4%	16%				
Not ambitious enough	45%	27%				
Choice of organic products, even if more expensive						
Agree	77%	68%				
Disagree	19%	32%				
Reduce weed-killers in the garden						
Agree	96%	94%				
Disagree	2%	6%				
Maintain flood expansion areas to the detriment of urbanisation						
Agree	98%	91%				
Disagree	1%	8%				

Fig. 5: Comparison of the responses to the public consultation and to a telephone survey in RM&C

These public consultations are useful not only in gathering information about the predominant opinions, but also in calling for a civilization impregnated with ecology awareness and ethic around the river; within society not only governments, stakeholders and scientists should be aware but individual citizens should also be conscious and therefore convinced to act.

II. Ecological status. The objective is no longer limited to the quantity and the chemical quality of waters but includes natural hydro morphology and flow regimes of rivers, wetlands and fauna. The water resources monitoring programs have already deeply evolved to samplings statistically representative of the different water bodies, following hydro climatic criteria and human discharges or activities. The biological indexes take now a greater place than before, based on hydro vertebrates fauna and fish populations. Research is going on to define the way to measure the hydro morphological quality of substratum and habitats, and to evaluate the contamination of the food chain, from zooplankton to fish. During the past, it has been thought many times that a problem did not exist, or was mastered, until a more precise monitoring program showed that it was not the case in fact. For example pesticides in ground waters or PCBs in rivers. A more "ecological" monitoring is a way to avoid such mistakes or problems let for future generations. Modesty in front of the complexity of Nature and in front of the uncertainty of Future is a more useful principle than pride and arrogance.

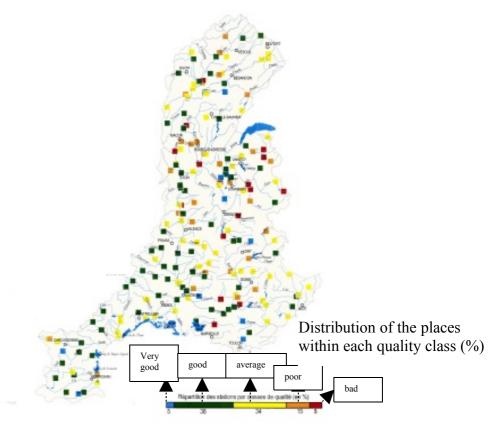


Fig. 6: 2007 River Fish Index for the RM&C Basins

At the same time, the Water Agency is developing its financial helps in the field of preservation of biodiversity, of environment, of landscape management, of natural habitats, of public health. New practices should be developed relying on new attitudes and new decision process.

III. Socio-economic instruments – The polluter-payer principle (PPP) is fundamental to gather the financial means that will allow the IWRM to be efficient. Of course the decisions of the Basin Committee have to be controlled by the Government. The level of the fees is arranged regarding the economic ability of each category of water stakeholder and within a maximum rate fixed by Law. For some scientists or politicians, the PPP should be just a dissuasive process, and the payers should not receive their money back. But in France, the fees go right into the Basin Organisation's coffers. Some people consider that the equilibrium between receipts and expenditures have prevented the Water Agencies from raising their fees at the optimum level, higher than their spending needs; on the other hand, subsidies gave highly appreciated examples of the utility of the Agency and the "fair return" of the fees was an indispensable condition for their acceptance and development. But the PPP is also a non expensive instrument which is broadly-accepted because funded on justice. As a matter of fact, it has a moral meaning with a powerful effect on water actors.

The fees should be theoretically as high as the cost of environmental damages but these ones are not known. In most cases, the level of the fees is not sufficient to force the polluter to invest in new de-polluting devices; anyhow, the aim is to influence little by little the water actors to operate their water works in an environmental friendly manner rather than to create brand new infrastructures, the death of an industry is not the wished scenario, the level of public water tariffs has to be regulated by the local authorities so that the cost can be sustainable to domestic consumers.

Little by little during the last ten years, the fees became very stable and therefore lost their incentive power, but this was not the case during the first 20 years; once again now, the new water law and the 9<sup>th</sup> Program of the Rhône Méditerranée & Corse Water Agency will not increase the total environmental fiscal pressure but will stress the differences between polluters, especially thanks to the geographical modulation of fees: that will wake up at least 50% of the water actors because of significant increase or creation of pollution fees.

Number of water actors concerned by	Evolution of the fees from 2006 to 2008				
	Decrease	Increase		Newly liable	
		50 to 100 %	> 100 %	to fees	
Domestic pollution	1352	562	405	4 368	
Industrial pollution	1057	291	378	417	
Drinking public distribution	944	615	-	500	
Irrigation	282	73	62	6 000	

Fig. 6: Evolution of the number of water actors concerned by fees in the RM&C basins

#### 4 Conclusions

All these ethical aspects can be summarized by the principle of "solidarity": between upstream and downstream water actors; between individual and collective interests, between present and future population. It is necessary to implement evaluation of both past and future actions and precautionary principle should be more present.

The French water agencies fees are not easy to classify among the classical economic instruments and they have met some critics, as far as several points are concerned. But all these critics are at the same time key factors of success: in the field of water, no other experiment in the world has been able to go as far as the French Water Agencies financial system because a sine-qua-non condition is that the system is broadly accepted. The private and public water actors have found an interest in this institutional construction, and have been able to conduct its evolution for a long time with respect of each category's interests.

## 5 References

- 1 European Parliament and Council Directive 2000/60/EC establishing a framework for Community action in the field of water policy Official journal L 327 (2000) p1-73
- 2 2004 Claudine Brelet Best ethical practise in water use UNESCO
- 3 François Guerber Rhône Méditerranée & Corse Water Agency The evolution of water resources monitoring on a European district XIII IWRA World Congress (2008).