European water protection
-
Some legal issues

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Water law issues arise due to a complex interaction of legal, social, economic and environmental factors such as: exponential increase of Human needs, decrease of available water, water pollution and more. We also can point out the fact that water has unique features, that make it difficult to regulate using laws designed mainly for land. The problem of the water has a strategic nature in the global scale and crystallizes multiple and major, environmental, economic, social and territorial stakes. The risks related to the rarefaction and to the contamination of the water resources take a particular dimension with ethical stakes, social equity and struggle against water-related poverty. In the decades to come, water managers will have to face up to a strong increase in needs for water. Global warming (increase in temperature, risks of drought) will lead to an increase in a need for water from irrigated crops, as well as human requirements.
For the past two centuries and even previously, the water domain has been the subject of an enormous amount of legislation and regulations. Gradually, a system of successive strata has been built to respond to the needs of different periods. The logic of Roman law was centered on the use of the resource. This creates a particularly "segmented and redundant" law. Moreover, the link between the use of the resource and ownership of the land is explicit in Wisigoth law (1). Historically, one thing must be clearly emphasised: There is a radical opposition between two approaches: one that considers water as a resource that flows through the planet and is a world heritage, and one that envisages some "ownership" of water in conjunction with land ownership. The law has never been able to decide between these two approaches. The Law of January 3, 1992 does not avoid the contradiction by establishing the principle of water "common good".

Regarding the major issues that freshwater represents to a global level, it seems necessary that water law be effective, clear, coherent and accessible. Simplifying the law means reducing the complexity of the water law as much as possible and repealing obsolete texts. It seems also necessary to take due account of civil society's expectations regarding security and the need for legal certainty and stability about the most important of humankind's resources. In this context, we can bring up the following question: why do the water law issues illustrate the relationship between risk and complexity? In order to respond to this problem, our study is structured as follows: The first section is devoted to some causes of water law complexity (I). The second section presents some consequences of this complexity (II). Then, the last section presents some potential solutions concerning issues of water law in the EU (III).

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I Water law complexity, some causes

Some of the main causes of the water law complexity are linked to the increasing complexity of several water risks (I.1) and to our modern law (I.2).

I.1 Several water risks

The water law complexity result from several water risks. The problem of water pollution is still a reality, as it is illustrated by the initiative "Right2Water"(2) which succeeds in gathering the million signatures required to be auditioned by the European Commission to establish a universal right for drinking water. Water pollution can occur through natural processes, but it is mostly a result of human activities (industry, farming, *etc.*). In both hypotheses, this pollution is microbiological (bacterial, viral or parasitic) or chemical. Since the 1950s, while industries developed as farming intensified, the use of chemical products became more prevalent causing increased environmental pollution in some cases. With the development of urbanisation and industrialisation, as well as the evolution of the modes of consumption, the rejections of used waters had evolved not only in quantity, but and especially in quality. Some manufacturing facilities use huge quantities of freshwater to carry away wastes of many kinds. The waste-bearing water is discharged into streams, lakes, or oceans, which in turn disperse the polluting substances. Nevertheless, this approach still requires fine tuning since industrial pollutants (heavy metals, solvents, by-products of oil, *etc.*) are reduced in particular thanks to the evolution of the scientific techniques or to the action of the water agencies.

Other pollutants, more contemporary, are still a major global problem requiring ongoing evaluation and revision of water resource policy at all levels. As technology improves, scientists are able to detect more and more pollutants, and at smaller concentrations, in freshwater. At the same time, it is becoming more and more difficult for regulators to keep pace with technological developments and so technical standardisation is increasingly used. Thus, the European Parliament has added 12 new substances to the EU priority list of pollutants known to pose a risk to surface water. Three pharmaceuticals (two hormones and a painkiller) will also be included on a watch list of emerging pollutants that could one day be added to the priority list. The updated directive on priority substances in water, approved in July 2013, amends the 2000 Water Framework Directive and the directive on environmental quality standards. Moreover, we can underline that water pollution could be caused by drugs that end up in drinking water after people take medicines. Echoing these preoccupations, in April 2013, the French Standards Association (AFNOR) proposed a new standard for detecting drugs in water (3) according to the Water Framework Directive.
We also can notice the environmental impact of nanotechnology, which can be split into two aspects: the potential for nanotechnological innovations to help improve the environment, and the possibly novel type of pollution that nanotechnological materials might cause if released into the environment. UNESCO and UNIDO will work together to explore the potential of nanotechnology in the field of treatment and water purification, even if they are also considering toxicological risks and potential impacts on human health and the environment related to these nanotechnologies (4).

The last point concerning the fact that while water is generally recognised as being a public good, the last two decades have put water services, which are dominantly in public hands, under huge privatisation and market liberalisation pressure. According to the terms of the 1992 law (5), it is not the vocation of the State to provide direct responsibility for the operational management of water resources: it is fundamentally the guardian of it. Thus, those private companies must not only apply national legislation, imperatives standards, they also have to

combine it with the texts from the European Union, international regulations, or independent administrative authorities.

A recurring theme throughout the research seems to be that to each kind of "water risk" responds a special kind of risk prevention, management, or risk monitoring, and risk compliance. And as a consequence, we can underline that each type of activity has its own needs and can be regulated separately. This is why we can make a kind of "modern rereading" of the old latin maxim: "*suum cuique tribuere*", meaning: "to each his own". Moreover, water law can be described as a "bundle of sticks" containing separable activities that can have different levels of regulation. The representation of different categories of actors/users in water management introduced a new coordinated approach into water legislation.
If the water law complexity results from several water risks, it also results from different level of intervention.

I. 2 Different levels of intervention

At the International level, the Food and Agriculture Organization of the United Nations, has identified more than three thousand treaties relating to international water resources, since 805 AD (6)... One of the first bilateral texts protecting the environment is the Treaty (11th January 1909) between the United States and Great Britain relating to boundary waters between the United States and Canada. Although water law is still regulated mainly by internal law, there are international sets of rules in long-term issues rules such as the Helsinki Rules on the Uses of the Waters of International Rivers and the Hague Declaration on Water Security in the 21st Century. The Helsinki Rules on the Uses of the Waters of International Rivers were adopted by the International Law Association, in August 1966. It is an international guideline regulating how rivers and their connected groundwaters that cross national boundaries may be used. The Hague Declaration ensures that freshwater, coastal and related ecosystems are protected and improved; that sustainable development and political stability are promoted, that every person has access to enough safe water at an affordable cost to lead a healthy and productive life and that the vulnerable are protected from the risks of water-related hazards. In 1997, the United Nations adopted the Convention on the Law of Non-Navigational Uses of International Watercourses. This document pertaining to the uses and conservation of all waters that cross international boundaries, including both surface and groundwater, was drafted by UN to help conserve and manage water resources for present and future generations. Those international rules include for instance: the possible effects of global warming on rainfall patterns and evaporation; the control of pollution and the growth of agriculture; changing basin dynamics and societal values.
All these international laws offer a fragmented protection of international waters and borders. We can also highlight that the greatest number of texts govern the use of water and not the protection of its quality.

At the European level, more than 30 European directives or decisions have been adopted in the fresh water and sea water pollution domains (7), as the three main directives: The Urban Waste Water Treatment Directive (1991); the Drinking Water Directive (1998); the Water Framework Directive (2000).The policy of the fight against water pollution is the oldest of environmental policies in Europe. European water legislation began, in a "first wave", with standards for those of our rivers and lakes used for drinking water abstraction in 1975. It culminated in 1980 in setting binding quality targets for our drinking water. In a traditional way, those regulations are linked to the uses of water resources. In 1988, the Frankfurt ministerial seminar on water reviewed the existing legislation and identified some improvements that could be made and some gaps that could be filled. This resulted in the "second phase" of water legislation. In 1991, the first results were the adoption of the Urban Waste Water Treatment

Directive, providing for secondary (biological) waste water treatment; even more stringent treatment where necessary and the Nitrates Directive, addressing water pollution by nitrates from agriculture. Other legislative results of these developments were Commission proposals for action on a new Drinking Water Directive, reviewing the quality standards and, where necessary, tightening them (adopted November 1998), and a Directive for Integrated Pollution and Prevention Control (IPPC), adopted in 1996, addressing pollution from large industrial installations. The European Water Framework Directive obliges France (as it does for the other Member States) to achieve by 2015, a "*good ecological status of the masses of water*" except in the event of postponement or derogation. One important aspect of the Water Framework Directive is the introduction of "River Basin Districts". This approach is so innovative that some authors present it as the dawn of a "third wave" of EU intervention (8). This Directive requires water resource plans based on river basins, including public participation based on Aarhus Convention principles. The Aarhus Convention (9) has been cited by the European Court of Human Rights in several cases, including *Branduse v. Romania* (10).
In accordance with the article 4 of the Treaty on the functioning of the European Union (11), a Member State has a shared competence with the EU when common safety concerns in public health matters occur (as environmental protection).
Moreover, each European member states have to enact national legislation in accordance with these directives. However, this can sometimes create significant legal uncertainty as the vocabulary used by European institutions is too technical and is in constant evolution. Indeed, scientific research has evolved since the 1960s and environmental concern then exceeds the "simple" pollution. The vocabulary applicable to streams is becoming more and more technical: we talk more of "aquatic, ecosystems" or "overall management". For example, the term "Hydromorphology" is used in river basin management to describe the combination of hydrological and structural processes and attributes of rivers, lakes, estuaries and coastal waters. Such complex terms, could create uncertainty in the law, because they change in line with scientific development.

French water law is the result of the superimposing of various laws throughout history. Besides the Environmental code, which represents a part of legislations protecting the quality of fresh water, between about "ten" and about "twenty" other codes are concerned (12).
The principles of water protection established in the 1960s seems insufficient to ensure the quality of waters (13), but a reconquest is then activated by the law of December 16th 1964. This law is a decisive turning point in water law (14). It puts in effect the importance of water quality and the fight against pollution. This law creates a special administration to achieve these objectives. It establishes the principle of river basin management, which is the foundation of what is called "French school of water". It also establishes local parliaments of water: river basin committees (it is composed of representatives of local authorities (local councillors) users' representatives and associations, as well as central government). This protection of the resource is supported by tax instruments and the creation of river basin agencies. This organization is complemented by a penal system, and the creation of a Ministry *ad hoc*. Indeed, the preservation of water and the aquatic environment is assigned to the Ministry of Ecology and Sustainable Development. This ministry is therefore responsible for writing proposals of laws or decrees to be examined respectively by the National Assembly (and the Senate) and the Government. It is also responsible for the coordination of the Regional Departments of the Environment (DIREN) and the writing of directives or circulars for the application of the laws and decrees. The State depends upon the recommendations of two instances: the Supreme Council for Public Health and the National Water Committee.
Despite reforms, is maintained in France of ancient rules as the law of 16 October 1919 (15) or some concessions back to the old regime, even in the Middle Ages. Coordination between the various laws in force poses serious problems both in the administration and in the courts (16).

The law on water of 3 January 1992, consecrated the notion of the overall management of the water resource, based upon the principle of solidarity between the users and an appreciation of water in all its forms: vital resource, ecosystem, support for activities, *etc.* This law is centred on four fundamental principles: management which reconciles economics and ecology; local management of the resource; fight against pollution and waste and a high degree of transparency. The Law on Water and the Aquatic Environment was enacted on 30 December 2006. It provides the tools to the administration, the territorial collectivities and the players in the water domain to reinforce the application of the Water Framework Directive and by 2015 achieve the fixed objectives "good ecological status".

At a Local level (municipalities and municipal associations), we can observe some successive transfers of powers in favour of regions and the development of quasi non-governmental organisations (Water Services Regulation Authority…). The French water management institutions are the result of the piling up of successive reforms in water policy, decentralisation and the transfer of competence from the State to local authorities.

To recap, we can underline that the volume of legislation about water risks, its piecemeal structure, its level of detail and frequent amendments, and the interaction with International and European law, mean that even professional users can find such law hard to understand, complex, and difficult to comply with.
The national and local laws and regulations have, since the end of the1980s, evolved in two main directions: the preservation of the natural environment and the protection of drinking water resources. This evolution is of course linked to the marked degradation of the quality of water in France and the recurrent problems of a drop in natural resources following the uncontrolled development of irrigation in the other French regions.
Much progress has been made in water protection in Europe, in individual Member States, but also in tackling significant problems at a European level. But Europe's waters are still in need of increased efforts to get them clean or to keep them clean.

II Some concrete consequences

Water law issues illustrate the relationship between risk and complexity. French water law issues illustrate all the more this phenomenon. Indeed, the interaction between European Union law and French law have important consequences on french legal system readability.
Two main causes appear: first, the complexity of French legal system itself in this field, then a super-imposition of European Union law onto French law (17).
Water protection is a part of environmental protection, which is a shared power between the European Union and its member states. As a result, the main legal instruments in this field are directives, which require implementation of European Union law into national law.
A case study from a local government perspective can help identify the challenges of water complexity. It reveals different types of consequences, in terms of time, costs, actors involvement, and last but not least about involving more risk. Finally, we will try to propose some potential solutions to this law complexity.

II.1 A small urban project: a case study

Imagine a local government in the south of France, which wants to realise the extension of an area dedicated to travellers accommodation. This project is quite common and small, and it is imposed by french law (18).
Quite surprisingly, the local government has to take into account the entire water cycle in its work. Therefore, before beginning its project, it has to follow some preliminary procedures,

which takes at least two years.

First, the local government has to complete an impact analysis of its project, towards specific elements of the project area.
If specific protected animals live in this area, it will have to fulfill a CNPN file (National Council of Nature Protection document), in order to ask for an exemption. Indeed, many common animals in France such as frogs (green frog, *hyla arborea*) or lizards (hispanic lizard, *podarcis hispanica* or green lizard, *lacerta viridis*) are part of protected species by french law (19). To fulfill these proceedings of exemption, it will take at least one year because of the number of informations the local government will have to give. Indeed, according to articles L.411-1 & 2 of the french Environment Code, any injury to a protected animal, including destroying the animal itself, or its habitat, or perturbing its way of life, is forbidden. To realise its project, the government has to ask for an exemption delivered by the prefecture of its department (20), after the National Council of Nature Protection has given its opinion.
In this CNPN file, the local government has to prove that there is no different solution with a smaller impact on the animal situation (with an analysis of the context and different kinds of nature impacts), and that there is no damage of its project on the global conservation of the species (21).
As a result, the local government has to lead several impact analysis about some specific protected animals. According to the 2007 Ministerial Order, this file has to be composed as follows :

- a description of the project, its aims and finalities ;
- a description of each protected animal species, as well as the number of animals concerned ;
- dates and place of the intervention ;
- different measures of compensation, with benefits for these protected species ;
- project workers' qualifications ;
- a description of all intervention protocols.

The local government produces two applications, each destined to each departmental organisation. This specific analysis of the project takes at least five months, due to the different institutions involved.
Then, the local government has to follow further proceedings if the area is made up of wetland (adding one year more of proceedings), or when a forest is located on or next to the area (adding six months more)(22).
As a result, before beginning its project, the local government has to lead potentially a two years and a half proceedings, especially about specific aspects linked to water resources.

As a second step, the local government has to fulfill a water law Application, which takes at least one year (23). It involves making a declaration or asking for an authorisation, depending on the impact of the project on water quality and quantities (24). The local government has to establish whether its project causes direct and indirect, positive and negative impacts on aquatic areas located on the project area. The principle is to analyse each step of the project and its potential impacts on aquatic areas, including surface and ground waters. Moreover, these analyses will take into account simple effects and the accumulation of effects.
According to article R.214-34 of the Environment Code, a water law application may generally consist of six documents. There are small variations depending on the type of procedure: a declaration or an authorisation (25).
The first document presents the local government. The second document explains some elements about the place where the project will be led. It develops on characteristics of the place and describes every aquatic environment that would potentially be impacted by the project. The third document describes precisely the project: its volume, nature, object. Then, the fourth

document describes the consequences on aquatic areas. It includes four different parts:

- an analysis of environment initial conditions ;
- a description of impacts of the project on the quoted environment (simple and cumulative impacts) ;
- a presentation of the project compatibility with department's SDAGE and SAGE (general management schemes of water resources)(26) ;
- and finally propositions of corrective and compensation measures in order to compensate potential damages on the environment due to the project. It also includes damages during maintenance work and during exploitation.

The fifth document of the water law file is a description of surveillance tools of the project control (about environmental aspects).
Finally, the sixth document is composed of maps, and any document that would enhance the understanding of departmental institutions.

These elements point out difficulties that come from water law complexity: in terms of costs, time, actors involvement and about involving more risk.

II.2 Two local consequences and two global impacts

Two types of consequences of water legal system complexity appear in a small project like the one presented *supra*: local consequences and more global issues.

II.2.1 Some local consequences

First, this pre-work involves a long term procedure: it takes at least two years of preliminary procedures before starting the project itself. It is important to point out that these procedures only concern water resources protection. A significative number of other types of procedure have to be completed concerning other aspects of the project (27).

Then, it is a heavy procedure as the local government has to understand and respect superimposed several legal rules (28), that it has to coordinate. It involves French Legislation such as 1984 Fish Act, 1992 Water Act, as well as 2000 EU Water Framework Directive implementation acts: 2004 & 2006 Acts (29).

Moreover, the local government has to take into account complementary implementation texts from European Union law, called « daughter-directives », that take the form of regulations. They include decrees, ministerial and prefectoral orders. For example, the 98/83 EU Directive has been implemented in the French legal system by two decrees and eleven orders (30).

As a result, the local government has to deal with an abundance of legal rules, for a small urban project. Legal system complexity involves another type of consequences in terms of financial costs.
This type of project becomes an expensive one for a local government. Because of the technical sophistication of water law impact analysis, it has to hire engineering offices to lead such a work, which is very expensive (31). For example, 2000 EU Water Framework Directive in one hydrographic basin cost 4 000 000 euros in a five years time (32).
Beyond these local aspects, it points out global issues from water law complexity.

II.2.2 From European perspective

First, this example points out an European issue: there is a constant time lag between European Union law and local government practice. A directive implementation into national law usually takes four years. One has to complete this time lag with a six years time of

implementation by local governments. Indeed, SAGE modifications are quite complicated to lead, as they involve a full application of the entire procedure (33). It highlights several issues about European Union law implementation (34).

Then, this complexity seems to have more serious consequences on water protection itself. Because of the sum of local consequences, water actors are not involved enough in European Union goals. It is too expensive and time-consuming for local and national governments. It is all the more important as the financial crisis has grown in European Union since 2008 (35).

As a result, European Union has not been able to achieve its goals in terms of the Sixth Environmental Action Program. Thus, European waters' quality continues to decline (36). As an example, the French Commissioner-General for Sustainable Development has established that the concentration of pesticides in French waters is continuing to grow (37). Therefore, it confirms that law is becoming an insecurity factor as it involves more risk.

III Potential solutions

We've tried to identify some solutions to these issues. Two groups of potential cures have been pointed out.

First, according to water actors, it would be helpful to develop a complexity pedagogy (38). It would mean improving the legal system readability, to re-involve water actors in water protection. For example, European institutions should create precise head documents to explain each step of the process. It would answer the issues linked to impact analysis complexity.

Then, a second group of potential solutions has been identified. It is true that a full global approach is required. It seems that it is necessary to enter into the integrated water resources management (39). A real integrated management does not exist, green seaweed pollution in Britain in 2009 is a good example of this phenomenon (40). The European legal system is still lost between two approaches. On one side, an historic approach based on water uses : the *suum cuique tribuere* maxim ; on the other side, integrated water resources management is applied by the 2000 water framework directive. As a result, the European approach is a mix that leads to a lack of consistency, and an accumulation of legal instruments.

As a concrete solution, water actors propose to remove some institutions and rules (41), in order to simplify the French water legal system (42).

To conclude, as there is no simple solution in law, it appears that it is necessary to use a diversity of tools. The main question in here is to establish how to coordinate these tools among each other.

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