

# **FRENCH WATER ACADEMY**

## **Shared Groundwater Resources and Conflicts**

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Water is a critical resource for humanity. No life can exist without water. All human beings rely on water for life and good health. It is the same for the fauna and the flora. In addition all economic and social activities need more or less quantity and quality of water.

Since the dawn of times, wherever humans lived together, water was the first thing they had to share in daily life...water, and the language, and much later was money invented as a means of interchange.

Water, a mobile substance, part of a natural cycle of eternal renewal, which cannot be possessed, in spite of the recurrent temptation to do so : This is why humans settled on the shores of rivers and lakes, close to water sources or springs. In all countries of the world the names of villages, cities and regions are associated to water. If industry, commerce or even strategic reasons incited humans to change their habitat, or when forced by the increasing demand, more or less distant water resources had to be tapped, thus accentuating the complex relationship between water, man and territory.

The imminence of that triple articulation is manifest at any geographical scale, wherever humans have in very many ways sectioned, divided and even confined the land (...motionless, in contrast to the mobile water).

Even at the elementary level of a patch of land, water problems may already emerge between neighbours depending upon the same subterranean resource (source, spring, well, etc.), between users of the same runoff water, or

between the riparian along the same watercourse (the word « rival» has the same etymological root as « riverain » in French, or riparian in English). The freedom of anyone is constraint by the action of the others; neither the right of usage, nor the ownership of the land, confer an absolute ownership of the water : everywhere and always, some constraints and restrictions are imposed, assuring the "right of way" to permit the access to water, or enable the transit of the water, naturally, or through man-made infrastructures.

At a larger scale, where actual or potential conflicts become permanent and serious, proliferating between more or less compatible water uses, and/or between concerned territories, it is getting impracticable to use incessantly the good services of the court or tribunal.

Hence, within the borders of a state, this sort of questions can be resolved, though not without problems. Obviously, it is easier - or at least, less difficult - to set up such problems within the same country, and in particular, in a State of unitary type, with the same legal system over its territory, including the right to land and water, and having the same governance - state administration and territorial municipalities. The problem of water and land becomes much more complex in a federal or confederal State, its articulation approaching that of internationally shared water resources.

In the case of water resources (rivers and groundwater) shared (or transferred) between several countries, diplomatic aspects, derived from the concept of national sovereignty, exacerbate the complexity of water policy and management at national level. Yet, it should be noted, that as regards to sharing the same water resource, the relationships between water, man and land are essentially the same for two countries as for two private neighbours.

Just as no absolute right to property can be constituted, the principle of sovereignty, exposed to the same reality, must compromise with similar constraints, giving way to higher interests. For instance, in the European context, the Rhine basin is a precious example of successful cooperation

between five countries with a long and often turbulent history. A wide variety of institutions and organisms came to existence in many parts of the world, with the participation of countries willing to improve the management of their shared water resources.

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After having discussed the relationship between water and the territory at different scales, it is useful to recall the ambiguity and complexity of the relations between man and the water : surely, these are influenced by economy, sanitary and social considerations, since water brings wealth health, public security and cleanness, water is also the carrier of risk (sometimes lethal) of illness and flood ; certainly, they have also an ecological and environmental dimension, water being vital for the flora and fauna, just as it is for humans, often more important than even the land. Finally, one has to appreciate the cultural and even spiritual significance of water. In some ancient civilizations, water was sacred as the source of life : water has its place in all the mythologies and religions. By its twofold power over life and death, water has become a metaphysical element, too : the symbolic importance of water in the human conscience has conferred to it an emotional tension, which must not be overlooked.

In fact, water intimately affects the sensibilities, images and mentalities, which constitute the foundations of the sentiment of individual and collective identity. Water thus appears as a potential source of conflicts, but also an immense agent of solidarity, a source of social and territorial cohesion.

Water supply being essential for most economic and social activities, the human dimension should be in the focus of all water projects.

In a liberal context, open to globalization, water policy can be based neither on the exercise of authority - this would not be accepted easily - nor on the "laisser-faire" approach of unrestrained individualism and selfishness.

It should be noted that in water affairs all problems appear like parts of a mosaic : they penetrate into each other, cover each other like roof tiles, and mutually determine, from one layer to the other. Attitudes at the lowest, most modest level accumulate and may lead to the most serious consequences at higher levels. Therefore, a water policy can be implemented at satisfaction only if accepted by the concerned water users, in their multitude and diversity.

It has been commonly accepted by the international community that the very first thing in water management is to collect data and knowledge about water resources (quantity and quality), and water uses. Yet, experience has shown that this is by no means a simple affair, in spite of the remarkable power of modern tools for observation, measurement, telecommunication, data processing and modelling : joint utilization of the needed data is made possible only by the solidarity of all the partners and the awareness of their common interest in the endeavor. The interested partners must share a sense for cooperation, to be able to address with serenity a basic issue such as water.

To carry the issue further, to plan and implement hydraulic infrastructures of common interest and operate them jointly in the benefit of all, requires comprehension, intellectual integrity and lots of patience, but also a power of imagination, to create genuine institutions, well adapted to the economic, social, environmental and cultural context. Water being so intimately linked to geographical and historical conditions, no universal "ready-made" solutions can be found. Nevertheless, by experience, some types of tools exist, which can be adapted and used, on a case by case basis :

- effective scientific, technical and technological support tools
- novel legal, administrative and institutional solutions
- efficient economic, financial and fiscal instruments

It must be underlined that the institutional aspects in the larger sense (management, education, communication) have an equal significance as the technical and financial issues, which in the past had been given priority and

almost exclusive attention. Water being so vital, the human dimension of water management - expressed through the consideration and close participation of all the stakeholders and their representatives – is an imperative necessity for harmonious and sustainable development

The theory and practice of natural resources management, including water resources management, is currently changing. The formerly neat and isolated compartments of study of water resources management are disappearing:

- In universities, scientists are starting to analyse water resources from multidisciplinary perspectives, as we do in the French Water Academy.
- In the field, water institutions and managers are urged to take account of the concern of the full range of stake-holders.

In both public and private sectors, decision makers are reorganizing forces which, until recently, they considered as extraneous. One of these is globalization that brings foreign institutions and actors into the domestic arena. Another is the reintroduction of explicit value system into policy choices, such as water demand management, waste water reuse and fair pricing. These policies are widely agreed to lead to more efficient, equitable and sustainable water management. Water management practices and policies are influenced by a balanced combination of economic, social, cultural and political factors.

As a matter of fact, culture, including religion, clearly influences how people perceive and manage a natural resource like water. Although this aspect was often neglected in most projects in the past, development agencies increasingly acknowledge the importance of local culture and values in their policies. However, this is not necessarily reflected in their projects in the field.

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Just as with large river basins, most large sedimentary aquifers are internationally shared (transboundary) water resources, in particular in arid and semi-arid regions where these aquifers present groundwater resources separated from surface water resources and are, for a large part, non-renewable. Their utilization is the principal, often major and sometimes the only source of water supplies and, when it increased, it can generate transboundary consequences and conflicts. The conditions and terms of a possible sharing of these groundwater resources common to several countries are much more complex than those related the sharing of river water. It is not simply a question of dividing the flow, but of distributing the various effects and impacts equitably at different periods of time in the future. This is beyond simple negotiated division and allocation, it demands that the internationally shared (transboundary) aquifer reservoir in question be managed on a community basis.

Shared groundwater management is among the most difficult case of natural resources management for many reasons :

1. Each water use must be efficiently runned (water supply, sanitation, irrigation, industry, energy production, ...)
2. Competing uses of all stake-holders must be conciliated.

These two objectives which are not easy to achieve for surface water resources, are even more difficult for groundwater and aquifers because these water bodies are out of sight just below the earth's surface, or even deeper in subterranean aquifers, and because they are generally not well known, even by hydro-geologists themselves.

The problem is much more complex when the aquifer crosses boundaries and is shared between different countries, states or regions. In this case, international, diplomatic and political considerations overlap with all other national aspects.

## **Brief reminder of the origins of International Law in the water sector**

As pointed out in Article 3.8. of the statutes of the International Court of Justice, which deals with all disputes in this area, including disputes involving water, the applicable rules are, in decreasing order of importance :

1. International, regional, multilateral or bilateral conventions, whether general or specific, recognised by the States involved,
2. Well established working practices,
3. Jurisprudence arising from judgements made by international or national tribunals, as well as any arbitration decisions,
4. Academic work (studies, propositions, opinions) produced by high profile organisations and internationally recognised specialists.

International law pertaining to water has, up till now, remained relatively embryonic.

Now, however, several general rules for joint management and concerted development for shared water have progressively been recognised by numerous States. Whatever the case, their practical implementation requires close co-operation between the countries involved, which means that several simple principles must be met :

- mutual understanding,
- equality and justice,
- reciprocity,

in other words, good neighbourly relations and a sufficiently high level of confidence between the partners involved.

## **Rules stemming from international right and various directives**

The new theories include the concepts of "the community of interests" between the riparian States and "the limited territorial sovereignty" on shared water resources, in order to provide to every riparian State a reasonable and equitable share of water.

They stress the following points :

- ◆ The use of water by one State must not damage the interests of another,
- ◆ There should be no abuse of rights.
- ◆ States sharing the same basin must promote good neighbourly relations,
- ◆ The "Internal water laws" of every State shall be formulated and applied in such a way as to avoid generating conflict.

### **Preliminary dialogue**

It is desirable that countries sharing a common water body establish unofficial contacts to exchange information about the resource, its uses and its management. Initial contacts should be at a technical level and established through their respective national water administrations.

When the States are considering specific cooperation between each other, these preliminary contacts are indispensable. They can take the form of invitations by one administration to another for some technical meetings in order to compare the data available on the basin, the management method and the technical work carried out. They should be held alternately in each country of the basin. It is useful if some experts from regional or international institutions are invited to these meetings.

The topics that could be analysed are as follows :

- ◆ Measurement networks for the quantity and quality of surface and ground water, for precipitation, with a description of the measurement techniques and station density. The corresponding studies could result in systematic data exchanges and an assessment of water resources in the basin.
- ◆ Analysis of data on water abstractions for different uses and discharges, in quantity and quality, as well as the treatment facilities and techniques used.
- ◆ Presentation of data on works completed for flow control, such as dams, and for protection against flooding (works on the river bed, embankments, etc.), as well as for navigation. Analogous exchanges on the protection of aquifers and wells.

- ◆ Exchange of knowledge on wetland areas and their conservation and on the measures that have been taken for environmental protection.
- ◆ Analysis of the works planned for the management of the resource : appropriateness of supply and demand, and demand management (water saving, reuse, etc.).
- ◆ Comparison of means dedicated to the training of technicians, users and the general public.
- ◆ Finally, presentation of the management methods employed in the countries concerned. Administrations in charge of water and sanitation, of planning, as well as of irrigation, of flood control, water legislation (policing of water, abstraction permit and discharge authorisations) and of actual arrangements for the financing of works, etc.

Finally, analysing the difficulties encountered and distinguishing those that can be solved in each part of the national basins or sub-basins, and those problems that can only be solved outside of these basins.

These exchanges could lead to the preparation of a monograph on the water body, which describes the natural resources, its cycle and its uses in relation to the requirements of the inhabitants and their activities, showing local problems in different locations and those, either existing or susceptible to appear, between the territories belonging to each country.

This indispensable preliminary dialogue phase is in no sense a waste of time. Quite the contrary, it allows the different national organizations to get to know each other better and, at the same time, to understand the problems affecting the water resource as a whole. This highlights the necessity of organising a forum for permanent dialogue between the States, may be resulting in the constitution of a Commission :

- ◆ either because some problems which disrupt (or could disrupt) its water resources can only be solved jointly,
- ◆ or because disruptions such as pollution, shortage of water at certain times, etc. are caused by activities from another State which is not respecting International Law, meaning a declared or potential litigation.

Obviously, it is easier to reach agreement when feelings are calm, rather than in heated discussions. Indeed, experience has shown that blocked situations and conflicts are very often due to insufficient or late contacts between the stake-holders, and to very different socio-economic levels between the countries involved.

In these cases, the requested and accepted intervention of international or regional institutions can help to ease the situation.

Therefore, it seems wiser to organise contacts at the diplomatic level as soon any malfunction resulting from the actions of a country that does not comply with International Law arises, or even when there is any risk of such a situation arising, as revealed by the technical exchanges between the national administrations.

Taking the initiative of an intended conference to organise dialogue and cooperation between the countries involved is more efficient than issuing a complaint. It is quite advisable to invite to the conference, in a first stage, representatives or experts of international or regional institutions, as observers.