

Water Resources Legislation: A search for common principles

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Introduction

Water resources have historically been subjected to government control. Its multiple economic, social and environmental roles, and its potential for either good or damage have justified government regulation and ownership since ancient times. At present, the water resources legislation of varying countries shares many features, including statements of water policies, public ownership and quality protection. They also include permanent oversight and protection and conditionalities to water uses and water rights.

The identification of common principles of water law is particularly important at a time when international investment is protected by international investment treaties whose main objective is protecting international investments without any duty of consideration for the general concerns of public interest.

The search for general principles of law, shared by domestic national systems, will contribute elements that highlight the gaps and differences between the decisions of arbitration courts and the principles informing national legislation and the decisions of national courts. Identifying gaps will also contribute to a body of constructive criticism of investment arbitration practices, hopefully leading to the overhaul of the criteria and principles applied by investment arbitration courts.

Water is an obvious asset in many international investments, including, but not limited to, agriculture, mining, oil, energy, tourism, land development, forestry and provision of water and sanitation services. At the same time, water can be affected by the practices of international investors: it can be polluted, water sources can be affected by economic activities and water-associated risks can be aggravated by defective land practices. Thus, different government activities could potentially conflict with foreign investors by enacting new regulations, requiring efficiency in water uses, reforming the conditions of water permits, and the like.

It is therefore relevant to elaborate on the main principles of water law, as found in comparative legislation, with a view to contributing to better decisions in water-related international investment arbitration.

1.0 Water Policies

Countries often state the purposes and objectives of their water policies in their water legislation. The statement of policies is relevant to the interpretation, application and enforcement of legislation.

Several laws include policy principles where the multiple roles of water are recognized. Thus, the 1970 Canadian Water Act encouraged optimum use of water resources for the benefit of all Canadians (Article 1). The Water Law of Germany (as amended on September 23, 1986) requests that water (both, surface and groundwater) be managed in a manner that serves the common interest, benefiting individual users, while preventing avoidable harmful impacts (Article 1a). The Netherlands' "Policy Document on Water Management" sets up a policy of integrated water resources management that includes the quantitative and the qualitative aspects of water management. The policy of the 1988 Water Law of China is to ensure the rational development, utilization and protection of water resources, fully realizing the benefits of water for economic development and the livelihood of the population. The policies of the 1992 Mexican Water Law included the preservation of water quality and the promotion of sustainable development.

2.0 Environmental Concerns

The environmental dimension of water is rapidly becoming a major component of water legislation. As water becomes scarcer relative to demand, as externalities increase, and as knowledge improves, the need to control the deterioration of water quality is translated into more detailed and demanding legislation. Permits, prohibitions and charges are used to curb the deterioration of water and related natural resources and environmental assets.

The Canadian Water Act of 1970, provides for the designation of water quality management areas and the implementation of water quality management programs (Article 11). Water quality management agencies shall plan, initiate and carry out programs to restore, preserve and enhance the quality of the waters within the water quality management area (Article 13).

The German Water Law (as amended 23 September, 1986) imposed a general duty to prevent water contamination and detrimental changes of its properties, requiring "an economical use of water in the interest of natural water resources" (Article 1a). Discharges into water are subject to maximum loads and technological requirements. Hazardous wastes must be treated using the best available technology (Article 7). Article 22 provides for strict, joint and several liabilities resulting from damages caused by introducing or throwing any substances into water. Discharges causing not merely insignificant detrimental changes shall only be allowed when overriding public interest thus requires it. Waters can be subject to characterization parameters issued by the federal government (Article 36b). The law also provides for proper flow conditions, maintenance of navigation, ecological requirements, landscape features, protection of banks and self-purification (Article 27).

The policies on environment and water of the Netherlands (1991) aimed primarily at having and maintaining a safe and habitable country and developing and maintaining healthy water systems that

guarantee sustained use. Three “screens” are established: 1) reduction of pollution at the source; 2) hydraulic design; 3) rational or “guided” use of water resources, in particular, groundwater. Quality objectives and monitoring methods and procedures have been established. The system includes licensing discharges into water and, for specific industrial sectors, into sewers; payment of pollution charges and the preparation, every five years, of action plans to combat water pollution. The policies also address diffuse pollution, like atmospheric deposition, tars (utilized on protection materials for wooden shore and bank facilities), and agricultural run-off and leachates. Some pesticides have been absolutely prohibited, others are restricted, and some are subject to application according to best environmental practices. Additional measures, intended to control environmentally negative effects, include friendly environmental design and sedimentation and eutrophication control.

The 1989 Water Act of England provided for the classification of water quality in relation to controlled waters (sect. 104), the establishment of water quality objectives (Section 105), controlling and remedying pollution (Section 107), protection from sedimentation and refuse or waste vegetation (sect. 109), protection against pollution (Section 110), creation of water protection zones (Section 111), establishment of nitrate-sensitive areas (Section 112), establishment of minimum acceptable river flows (Section 127), and enactment of codes of good agricultural practices, with a view to protecting water resources (Section 116). The 1991 Water Resources Act imposes conservation and enhancement duties on ministers and the National Rivers Authority, with a view to protecting amenities, flora, fauna, historical places and other environmental interests. Public access and public availability are also taken into account. These duties are likewise to be considered when dealing with undertakers and their proposals for the management of waters and lands (Section 16). Additional duties refer to environmental concerns for sites of special interest and for enacting codes of practice with respect to environmental and recreational duties (Section 17-18).

The Water Law of China (1988) created a state duty to protect water resources and adopt effective measures to protect flora, conserve water sources, control soil and water losses and improve the ecological environment. Water pollution is to be prevented and controlled, with a view to protecting and improving water quality. Several articles of the law address this directly. Supervision and management of prevention and control of water pollution is to be strengthened (Article 5-7). Agriculture must be practiced with a view to promoting stable and high agricultural yield (Article 15). Hydropower development is to be done in accordance with the protection of the ecological environment (Article 16). Fish ladders must be constructed when needed (Article 18). Adverse environmental impacts in the implementation of inter-basin transfers (Article 21) must be prevented. Additional rules control disposal of refuse, mining activities, land reclamation, construction of projects, and creation of management and safeguard zones (arts. 24-29).

In some systems, environmental concerns, public ownership and police power are the basis on which existing water uses and rights can be amended, restricted, subjected to pro rata, or cancelled.

The 1992 French Water Law authorized changes in water rights when public health or safety so requires, or when water environments are threatened (art. 10iv). In the United States, the public trust doctrine has been utilized to limit prior appropriation rights when the full exercise of such rights would have affected the environmental functions of Mono Lake. In *Saladeros Podestá v. Provincia de Buenos Aires* (1887), the Argentinean Supreme Court ruled that the closing of a tannery polluting the waters of the Riachuelo River was a legitimate exercise of both public domain and police powers. The tannery owners argued that they were utilizing their property rights, and that no pre-existing regulation controlled the activity. The court ruled that there were no acquired rights superior to public health interests.

3.0 Protection and Management of Water Supplies

The protection of water sources has been a traditional concern of water law. Increasing demand and externalities have strengthened this concern. The Mexican Water Law reflects this dimension of water legislation through the regulation of the use and development of national water resources.

The German Water Law provides for the creation of water protection areas, within which certain activities cannot take place, or certain measures have to be tolerated (Article 19). The law requires the licensing of pipeline systems conveying substances constituting a hazard to water. These licenses are subject to conditions that can be changed even after a license has been issued (Article 19). Use of, and discharges into, groundwater are subject to permit and licensing (Article 32-34).

Groundwater is controlled and protected. A number of countries have enacted legislation requiring permits, creating administrative devices to control the use of groundwater in special management areas and restricting the expansion of high consumption activities like irrigation. Management measures include: issuing certifications of assured water supplies required for the approval of subdivision plots, registration and recording of wells, control of water storage and recovery, control of well drillers, protection of pre-existing uses, use of groundwater charges, measurement of withdrawals, estimations of supply and demand, stopping and reducing withdrawals in order to allow replenishment, granting emergency powers in case of drought, granting of permits at the discretion of water administrators (except in cases of clear abuse of discretion), deadlines for waterworks and activities, monitoring, possibility to amend and forfeit water rights (previous hearing), conjunctive use of surface and groundwater, control of discharges into groundwater and allocation of groundwater to preferred uses like drinking water supply.

The 1991 Water Resources Act of England provides for the National Rivers Authority to have a general mandate of proper management, which includes conserving, redistributing, augmenting and securing the proper use of the water supplies in England and Wales. Water resources management schemes can be entered into for this purpose.

4.0 Water Planning and River Basins

The development of water resources is no longer amenable to isolated action. Water legislation is rapidly evolving towards integrated water planning to satisfy environmental objectives, economic requirements and social concerns.

German water legislation (as of 1986) requires a prior plan approval procedure before approving any substantial modifications of water bodies and their banks (Article 31). River basins and economic regions shall be subject to water plans, in order to safeguard the water resources needed for economic improvement and protection of the quality of life. Plans must consider available water resources, flood control, and protection from pollution, integrating water planning with regional planning. Plans are subject to adjustment and updating. They are implemented through a variety of means including, among other things, administrative requirements and revocation of permits and licenses (Article 36b).

In Europe, one trend is to implement a double level of water resources management: a regional level for water basin plans, legal enforcement and incentive policies, and a local level for operation of services, and for implementation of innovative policies, like urban hydrology. The German (Ruhr) organizations and the French model are known worldwide. However, the Ruhr system seems to be strictly related to the socio-economic characteristics of its area of origin, and therefore non-replicable. On the other hand, the performance of the French river basin agencies has drawn some criticism, resulting from excessive reliance on a “give and take” approach and also from argued shortcomings in integrated water resources planning and lack of clearly defined police powers.

Another well-known international example is the Tennessee Valley Authority in the United States. However, its unique policy foundations, political support at the time of inception and complex gamut of economic, social and managerial objectives would be very difficult to successfully replicate elsewhere.

The 1988 Water Law of China requires that the development and utilization of water and the prevention of disaster be planned in a comprehensive and systematic manner, with all the aspects taken into account, for multipurpose development and maximum benefits, allowing full consideration of the multi-functions of water (Article 4). There are comprehensive plans for the basins of major rivers and specialty plans for sectors. Comprehensive plans shall be coordinated with the National Land Plan considering the demands of different regions and sectors. The Department of Water Resources at different levels of government prepares them. Specialty plans are sectoral, to be prepared by the concerned departments (Article 11). Remedial measures or,

alternatively, compensation are required in cases of interference with existing developments (Article 20).

5.0 Assessment of Water Projects and Programs

Water-related programs and policies are, in some countries, assessed according to their impact on the environment and other national concerns. Decision-making in Australia, as required by the Intergovernmental Agreement on the Environment, must: include economic and environmental considerations; consider that strong, growing and diversified economies enhance the capacity for environmental protection; apply the precautionary principle; look for intergenerational equity; and conserve biological diversity and ecological integrity.

More than twenty years ago, the National Water Resources Council of the United States prepared a set of Proposed Principles and Standards for Planning Water and Related Land Resources (1971), which are a good example of multidisciplinary assessment of water plans. The principles call for the implementation of a system to display the relevant beneficial or adverse effects of water plans. Consequently, water development was to be assessed according to the effects that alternative plans would have on objectives of national economic development, environmental quality, regional development and social factors.

The 1969 United States National Environmental Protection Act (NEPA) requires that federal agencies include an Environmental Impact Statement for every major federal action significantly affecting the quality of the human environment. NEPA has been used to bring water-related cases to the courts (dam and reservoir construction, dredge and fill, flood control, ocean dumping, rivers and harbours projects, and wetlands and water pollution). There is at least one court case where an environmental impact assessment was requested for irrigation subsidies. A federal judge in California ordered an environmental review of rules regarding how many acres farmers in the western States can irrigate using subsidized federal water. The Bureau of Reclamation had to study the effects of a set of rules and regulations that it enacted in 1987 to put into effect the 1982 Reclamation Reform Act. The rules were challenged by environmental groups, who argued that they allow large farms to continue using subsidized water, defeating the purpose of the reclamation project to provide cheap waters to family farms, and not properly assessing their environmental impact. The 1902 Reclamation Policy provided water, below market prices, with a view to increasing agricultural output and to encouraging the creation of family farms. Leasing arrangements and other devices were used to escape the limitations on acreage intended to promote family farming. Subsidies were in fact granted to very large farming operations.

The 1992 Act required that water provided to agricultural holdings exceeding the legal limit pay the

full cost for water. The Bureau of Reclamation enacted regulations to implement the Act. These regulations were found to have no significant impact, and were, therefore, not subjected to Environmental Impact Statement. This finding was challenged in court, which found that the regulations were a major federal action with a potential to significantly affect the human environment. The court objected the use of purely economic notions like “rational utility maximiser,” which it found theoretical, far from reality and in violation of the regulations, which require an interdisciplinary approach. An environmental impact review was therefore requested (*Natural Resources Defense Council v. Duvall*, 1991; New York, USA. p. A14).

In the Netherlands, the activities requiring environmental impact statements include, among other things, discharges into surface and groundwater; interfering with the groundwater table; construction of navigable waterways or widening or deepening them; diverting a navigable waterway when it is a river; construction of naval ports; construction of main water pipelines; construction of marinas, dikes, dams; land reclamation; and construction of water reservoirs (United Nations Economic Commission for Europe, 1991, p. 39).

Norway has environmental impact statements procedures requiring that possible impacts on the environment, natural resources and society of all major physical developments be assessed (United Nations Economic Commission for Europe, 1991, p. 9). Some countries have established areas in legislation within which projects or programs are presumed to have significant environmental effects. In Finland, they include a number of areas in the Wild and Scenic Rivers Conservation Act and groundwater protection. The criterion of sensitive areas is also utilized in land planning. Poland lists the disturbance of water regime and intakes as one of the factors likely to produce environmental alterations. (United Nations Economic Commission for Europe, 1991, p. 28).

The 1992 Canadian Environmental Assessment Act aims to ensure that environmental effects of projects are carefully considered; that sustainable development is promoted for a healthy environment and a healthy economy; to ensure that projects do not cause significant adverse environmental effects; and to ensure public participation. The Act applies to projects where the federal government has decision-making authority. Assessments are to be carried out as early as possible (Article 11). The Act is to be implemented through four regulations: Inclusion List, (physical activities); Exclusion List (insignificant environmental effects); Law List (functions, powers and duties whose exercise requires assessment); and the Comprehensive Study List (significant environmental effects). The Law List includes several water-related enactments, like the Navigable Waters Protection Act, the International Rivers Improvement Regulations, and so forth. The Comprehensive Study List includes, among other things, water-related activities like dams in national parks and protected areas; hydroelectric generating stations with more than 300 MW of production capacity; certain categories of water projects; off-shore oil, gas and minerals projects; and certain transportation facilities.

6.0 Conciliation of Interests and Consultations

Governments are resorting to conciliation mechanisms and preventive strategies in order to manage water-related differences and coordinate activities, with a view to achieving the several objectives, and satisfying the multiple demands usually associated with water resources.

The federal government and the states of Australia signed an Intergovernmental Agreement on the Environment (May 1, 1992). The Agreement intends to provide a cooperative national approach to the environment, a better definition of the role of the respective governments, a reduction in the number of disputes, greater certainty and better environmental protection. The agreement acknowledges the role of state governments in developing national and international policies; the global character of environmental concerns; the need for ecologically sustainable development; the need to conserve and improve biota, soil and water resources; the relationship between efficiency and clear definition of the roles of different levels of government; the need to have explicit accounts of costs and benefits; the relationship between effectiveness and cooperation; and the need for accountability. The Agreement determines the responsibilities and interests common to all levels of government and those that are the concern of specific levels of government (federal, state and local governments). It also states procedures for the accommodation of interests.

The German Water Law (as amended in 1986) provides for the reconciliation of rights and authorizations to use water when either the qualities or the quantities of existing supplies do not allow the satisfaction of all uses. Compensations can be paid (Article 18).

The Water Law of China of 1988 provided for the settlement of disputes among districts through consultations, in adherence to a spirit of mutual understanding and mutual accommodation, solidarity and cooperation. Only after consultation fails are disputes referred to the next level of government. Projects cannot be implemented while a dispute is not settled, unless there is an agreement between the parties, or an approval is granted by the next higher level of government (Article 35). Consultations are required for projects with intersectoral or interregional impacts (Article 22). There are provisions for the relocation of populations displaced by water projects (Article 23). Lacking agreement on mediation and consultation, or if they are not successful, the dispute can be referred to adjudication by either the administration or a court. Administrative decisions can be referred to court when a party refuses to accept the administrative decision (Article 36). The water regime cannot be unilaterally altered pending a decision. Temporary measures can be authorized by government.

The Canadian Water Act of 1970 establishes a system of agreements between the federal

government and the provinces for the management of any waters where there are significant national interests. The agreements shall include the responsibilities of the parties; the allocation of costs and the terms of payment; the provision of labour, land and materials by each party; the proportion of any compensation to be paid by each party; the conditions of loans, if any; the responsible authorities; and the general terms and conditions of the program. There are also references to the conditions of the boards, commissions or other bodies to be created under the agreement, where applicable (Article 7). Water quality management agreements are also provided for (art. 9). Under special circumstances, the federal government can create federal water quality management programs for interjurisdictional waters (Article 11).

7.0 Information

To be effective, a system of participatory planning and management of water resources must be able to provide timely information on what kind and quality of water is available, where, and who is using the water and for what purposes. Therefore, effective water management systems require adequate official surveys, inventories and cadastres of water sources and water supplies, as well as up-to-date registers and records of water uses and discharges into waters, water rights, and beneficiaries of such rights, with their respective water allocations.

The 1989 Water Act of England provides for registers with information on water quality objectives, applications, consents, certifications, water samples and the like. The registers shall be available for inspection by the public, free of charge. Members of the public can obtain copies of entries paying a reasonable fee (Section 117). English legislation also requires that the National Rivers Authority and every water undertaker keep records of underground works, maps of water mains and sewers, and that this information be made available to the public free of charge (Section 165). The 1991 Water Resources Act creates registers of abstraction and impoundment licenses, pollution control, and discharge works, as well as mapping systems of freshwater limits, main rivers, and waterworks (Sections 191-195).

The objective of information is to facilitate appropriate decisions by policy-makers, administrators, managers, users and the public. Therefore, legislation requiring the submission of information by managers to policy-makers, users and the public at large, and by users and the public to managers, is becoming part of modern water law. The 1991 English Water Resources Act requires that the National Rivers Authority provide information to policy-makers, undertakers and the public (Sections 196-197). The Authority does, in turn, have the power to obtain information about surface and groundwater. Information shall be timely and adequate, and there are provisions on the kind of information to be collected and the manner in which the information must be organized (Sections 197-203). The English system is complemented with norms on confidential and reserved

information and penalties for false statements (Sections 205-206). Public participation is sought through a system of enquiries (Sections 213-215).

The Water Act of Canada (1970) sets up public information programs through which the public is informed about water conservation, development and utilization (Article 27). The Act also requires that the minister responsible for water informs the Parliament on the operations carried out under the Act each fiscal year (Article 36).

8.0 Public Ownership and Control

Property is to law what scarcity is to economics. Law and economics are not separate and mutually exclusive, but interdependent regarding form and content, ends and means. Water has traditionally been subject to public ownership and control. It carries, among others, public good aspects, external effects, imperfect competition, risk, uncertainty, imperfect information, potential for social and environmental inefficiencies and inequity, and vulnerability to monopolization.

The essential nature of the resource and its multiple different roles have historically prompted countries to accept the public nature of water resources. For example:

- Egyptians had specialized water offices and records, and deterioration of waterworks was punishable by death (Caponera, 1992, p. 14). Water belonged to the Pharaoh and there were corvees and taxes related to water.
- In Mesopotamia, water was not private and landowners were subject to restrictions to supply water to communities.
- In China, water law was based on a sense of cosmological harmony, on law and custom. It was a mix of Confucian ethics and written law. Water management was tied to the rhythm of spring, summer and other seasonal activities. No private ownership of waters existed and water administration was a government task, headed by the emperor, with local decentralization.
- In Muslim law, water was the common entitlement of all Muslims. Water is common to all since all Muslims are partners in fire, water and grass.
- Similarly, in early Hindu law, water had a fluid and purifying nature, and could not become an object of appropriation.
- In Roman law, terrestrial waters were considered public when they had a certain magnitude - there was a *communis oppinio* that they were public, and they were perennial. The same criteria applied to lakes (Spota, 1941). Public waters, especially navigable waters, were controlled and monitored by the government. Diversions were allowed if they did not conflict with navigation. The right of navigation appears to have been common to all.

Defense and crossing works over these kinds of rivers had to be approved by the authority. On these waters, fishing rights were recognized to all. Public water was vested in the Roman people or on the autonomous burgs. The principle of no harm through the redirection of rainwater was enshrined in the 12 Tables (*actio pluviae arcendae*) (Caponera, 1992, pp. 30-43).

- Spanish rivers, navigable or not, were included in the public domain in the thirteenth century by the Code of the Siete Partidas of Alphonse the Wise (Spota, 1941, p. 245).
- In France, the king had owned navigable and floatable waters since 1669. Ownership was transferred to the State in 1789. Later on, when defining Public River Property, the finance law of April 8, 1910 (Article 128) replaced the criterion of navigability in the 1898 law, by the classification principle which was confirmed by the executive enactment of December 28, 1926. An administrative procedure (Article 2 of the Public River Property Code) defines the classification procedure. Likewise, Decree no. 69-51 of January 10, 1969 defines the reclassification procedure for watercourses which are the public property of the State (Sangaré & Larrue, 2002, p. 17).
- These waters require permission to be used. Non-navigable waters were for the use of the riparians, but aside from the case of simple bank cuttings for irrigation, administrative authorization was required (prefect). In general, the increasing predominance of public law in water management has gradually led to water rights becoming a set of regulations concerning the uses of the resource. (Sangaré & Larrue, 2002, p. 26).

At present, in most systems, water belongs to the public domain. Such attribution of ownership results from the notion that the particular characteristics of water resources and their importance to economy, environment and life, do not allow private ownership of water as a resource. It also has a bearing on management systems, as the characteristics of water require a certain level of technical capacity and imperium to understand and administer the resource, and to settle conflicts. Thus, water is under public ownership in the legal systems of Argentina, Chile, Colombia, Brazil, Peru, Mexico, Spanish Water Law and state water laws in the United States.

In France, water is presently regulated by the Law of 1992, according to which water belongs to the public patrimony of the nation, and its proper management is of general interest. It establishes a system of authorizations for the use of water, and allows cancellation and changes in such authorizations without compensation, based on the police power of the state, in the case of public health or public supply, public safety, environmental threat, abandonment, bad management, etc.

9.0 Regulation and Conditionalities of Water and Water Rights

Water is subjected to permanent regulation. Thus, American Law has ruled that:

For the purpose of our decision it is of no consequence whether the rights which are for adjudication here are appropriative rights or riparian rights. The settled law in the State of Washington is that riparian rights, their existence and continuation, are, like appropriative rights, dependent upon beneficial use. Departing somewhat from its earlier decisions, the Supreme Court of Washington in 1923, in the case of *Brown v. Chase*, 125 Wash. 542, 553, 217 P. 23, 26, said: 'we are now prepared to declare, instead of the mere loose and general expressions in some of our opinions, that: (1) Waters of non navigable streams in excess of the amount which can be beneficially used, either directly or prospectively, within a reasonable time, on or in connection with riparian lands, are subject to appropriation for use on non riparian lands.' Though the *Brown v. Chase* decision came later than the year 1908, with which year we are primarily interested here, the determination as to the rights of riparian proprietors in that case was a declaration not of new law created by statute, but of pre-existing law in the State of Washington. The rule of the case has been followed consistently. In 1925, in *State v. American Fruit Growers*, 135 Wash. 156, 161, 237 P. 498, 499, the court, after citing and quoting from *Brown v. Chase*, said: 'In other words, the riparian owner, before he has any rights to protect, must with reasonable certainty show that either at present or within the near future he will make use of the water for irrigation purposes. The Washington Supreme Court has defined 'reasonable time' to mean 'say two or three years. (*State ex rel. Liberty Lake Irr. Co. v. Superior Court*, 1907, p. 968).

In the same vein, most American State Courts have decided that changing from riparian to permit rights systems and requiring effective and beneficial use for riparian rights to be preserved when changing the system of private rights, is a legitimate exercise of police power and regulation of public domain. Moreover, water rights can be regulated according to changing circumstances, without compensation, provided their economic content is not completely obliterated.

The imposition of conditionalities for water rights is an exercise of public domain. Most national water laws have provisions that require the effective use of water entitlements, either for a right to be born and kept, or for the maintenance of a valid water right.

The principle of effective and beneficial use is widespread. While the terminology is not uniform, the German Law (as amended on September 23, 1986); the 1985 Spanish law; the Mexican Water

Law of 1992 (Article 27. III); the legislation of most Argentinean provinces; and the laws of the states of the American West, specifically state that water rights are subjected to forfeiture for non-use.

The authorities, judges and legislation of the United States have precisely and clearly constructed the rationale behind the principle. A typical statement of the rule of beneficial use is: “Beneficial use is the basis, the measure, and the limit of all rights to the use of water in this state [. . .] consistent with the interest of the public in the best utilisation of water supplies.” The tenets of the doctrine of effective and beneficial use are: a) water is not to be obtained for speculation or let run to waste (reality of use); b) the end use must be a generally recognized and socially acceptable use; c) water is not to be misused (reasonable efficiency); d) the use must be reasonable as compared against other uses (Beck, 1991, p. 106-108).

A common idea was that the quantity of water was to be no more than needed, the concern being with the possibility of vesting an absolute monopoly on a single individual. This antimonopoly/anti-speculation concern when claimants do not have a specific use in mind continues today (Beck, 1991, p. 106-108).

In addition to the requirement of effective and beneficial use, there is general trend to condition the use of water. This conditioning includes formal (obtaining a permit) and substantive requirements (i.e., no harm to third parties, environmental protection, efficiency). For example, the German Water Law, as amended in 1986, which provides a good example of trends, attaches a number of conditions to water use, permits and licenses. They include effective use, prevention of detrimental effects, payment of compensations, preventive assessment, appointment of caretakers, remedial measures and payment of common control costs (Article 4). A particular feature of the German legislation is the possibility of imposing new conditions after a permit or license has been granted. Ex-post conditions may refer to the environmental or the economic requirements of water resources management (Article 5). A water right can be revoked for non-use, lack of need, change of use by the permittee, use beyond the allocation under the permit, etc. (Article 15). Permits are required to either withdraw water or to effect discharges into them. However, as far as it regards the relationships between the administration and a water user, a water right is not an entitlement to any specific water quantity or quality (Article 2). Applications can be rejected and permits and licenses are granted for specific purposes, in a specific manner, and to a specific extent. They are revocable (Articles 6-7). Use of water by property owners and riparians shall not adversely affect other persons, cause detrimental change to water, adversely alter water balance, or substantially reduce water flows (Article 24).

10.0 Conclusions

Historically, water has been associated with public interest concerns and public ownership. Governments have controlled the use of water, and regulated activities with an impact on water, in order to protect water quality, water regimes and water supplies. Modern water legislation includes water planning and assessment of water projects and programs. Most systems include water under the public ownership of governments. Some modern laws explicitly declare the objective to integrate water into developmental processes.

Amendments of water-use systems are accepted, even ex post, when their objective is to protect water quality and water supplies or to rationalize water uses, with a view to protecting water sources and match supplies and demand. However, ex-post regulations should not, in most cases, totally eliminate the economic value of water uses.

When public interest concerns such as water quality, public health, and environmental protection are at issue, the notion of vested rights cedes before the public interest. Water rights are subjected to different conditionalities, including effective use, beneficial use and prevention of damages to third parties and the environment.

The standing of governments in cases of international investment arbitration will be enhanced if they enact legislation, including water under public ownership, subjecting it to permanent regulation on behalf of public interest issues, and requiring the issuance of permits and licenses for activities having either an impact on water or implying water use.

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