INTERNATIONAL CONFERENCE ON WATER MANAGEMENT IN FEDERAL AND FEDERAL-TYPE COUNTRIES

CONFERENCIA INTERNACIONAL SOBRE GESTIÓN DEL AGUA EN PAÍSES FEDERALES Y SEMEJANTES A LOS FEDERALES.

The Situation in Argentina

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Abstract: This document attempts to specify the concepts of government, administration and management in public law, and it seeks to point out the specifics of Water Management and its difficulties in federal countries. It will describe the situation in Argentina regarding the various water resource management fields, and it will analyse the federal government scheme that is hallowed by the National Constitution, which is linked to water management in the country.

Key words: Management – Water – Federal Countries – Argentina

SUMMARY

I. Introduction.

1. [1]Hydrological Data on Argentina.

A) Territory.

By surface area, Argentina is the second-largest country in South America, the fourth largest on the American continent and the eighth in the world, thereby considering that the continental surface area under its sovereignty includes 2,791,810 km². However, if the Falklands, South Georgia, South Sandwich and Aurora islands are taken into account, plus the Antarctic area claimed to the south of the 60th south parallel – which includes the South Orkney and South Shetland islands – the total surface area increases to 3,761,274 km².

The continental territory borders Bolivia, Paraguay and Brazil on the north; Brazil, Uruguay and the Atlantic Ocean on the east; Chile and the Atlantic Ocean on the south; and Chile on the west.

Argentinean territory is divided into 23 provinces and the Autonomous City of Buenos Aires. The capital is Buenos Aires, the seat of the federal government.

B) Population.

The population of Argentina in 2001 amounted to 36,260,130 inhabitants – 0.59% of the global population. In 2008, the population will reach 39 million inhabitants, with a mean density of 14 inhabitants/km².

The population is unequally distributed: about 12 million people are concentrated in the metropolitan area of Buenos Aires, which is equivalent to 33% of the total population. The Province of Buenos Aires is the most populated, with 13,827,203 inhabitants (37% of the national total), 9.7 million of whom live in Gran Buenos Aires. A total of 60% of the population is concentrated in a region comprising three provinces – Buenos Aires, Córdoba and Santa Fé – over a surface area that doesn't even reach 22% of the country's total. Far from the aforementioned figures, with a population of approximately one million inhabitants, are Chaco, Corrientes, Entre Ríos, Misiones, Salta, Tucumán and Mendoza, with the latter exceeding one and half million inhabitants.

[1] For more information on data of interest on Argentina, see: http://www.argentour.com/es/index.php; http://www.mrecic.gov.ar/;http://es.wikipedia.org/wiki/Argentina; http://republica_argentina.ar.tripod.com/clima.htm

C) Climate.

The continental region of the country has great longitudinal and latitudinal amplitude, which means that there are large contrasts of climate and landscape.

The presence of the ocean and the mountains determine four climate zones: coastal, Mediterranean, Andean and Patagonian. The coastal zone is temperate and humid, and it has abrupt temperature changes; the Mediterranean zone is temperate and dry; the Andean zone is cold, with extreme daily temperature changes; and the Patagonian zone is cold and dry.

D) Precipitation.

In general, there is high inter-annual variability, which causes problems of droughts or flooding, depending on the region. On the Pampa plains, unlike the rest of the country where there is a defined seasonality, the distribution of precipitation throughout the year is more uniform. The mean annual precipitation varies from less than 50 mm in certain regions of the provinces of San Juan and La Rioja, to the exceptional extremes of 5000 mm in the Andean-Patagonian forests.

The annual isopluvial lines of 500 and 800 mm allow dividing the country into three climate regions: humid (over 800 mm), semi-arid (500 to 800 mm) and arid (less than 500 mm). According to these divisions, 76% of the Argentinean continental territory is located in arid or semi-arid regions.

E) River Systems. Main River Basins.

Due to Argentina's territorial extent and the diversity of climates, its river system is varied.

Argentinean rivers are divided into two watersheds: the Atlantic (most of the country) and the Pacific (marginal), in addition to several endorheic basins, and they are distributed among five main river basins: the Plata River basin, the Central basin, the Pampa basin, the Andean basin and the Patagonian basin.

There are few rivers in the Pacific watershed, but they have high volumes and circumscribe the Patagonian Andes. The main ones are the Hua Hum, Manso, Futaleufú, Mayel and Fagnano Rivers.

Three groups are distinguished in the endorheic watersheds:

The Dseaguadero River system, where the rivers of the central Andes, of the Sierras of San Juan and Mendoza and of the northwest of La Rioja flow. The main rivers are the following: Jáchal, San Juan, Mendoza, Tunuyán, Diamante and Atuel. They are rivers with low and irregular water volumes due to the aridity of the region.

Error! Reference source not found.; http://geografia.laguia2000.com/hidrografia/argentina-hidrografia; **http://www.fceqyn.unam.edu.ar/icades/index.php?option=com_content&task=view&id=182&Itemid=86**;

The system of the great salt lake of Mar Chiquita, in Córdoba, receives water from the Dulce, the Primero, or Suquía, and the Segundo, or Xanaes, Rivers. The Mar Chiquita lake connects underground with Atlantic waters, which are more than 900 km away.

The Quinto river, which originates in the Sierra de San Luis, runs through a series of marshes and swamps in the south of Córdoba, where the water connects underground with the springs of the Salado River.

The **Plata River basin** is the second-most important one in South America. It covers land in Brazil, Bolivia, Paraguay and Uruguay. Its main rivers are the Paraná, the Paraguay and the Uruguay. The Plata River itself consists of a 290-km long estuary open between Argentina and Uruguay, after the confluence of the Paraná River and the Uruguay River. Other, minor rivers also discharge there, such as the Salado River, which collects water from Buenos Aires. The Paraná originates in Brazil, it has a length of 4500 km, and it carries a very high volume. It receives water from the Iguazú, but its great tributary is the Paraguay River (2000 km long), which originates in the Brazilian Matto Grasso. The Paraguay's main tributary is the Pilcomayo River. Its mouth at the Paraná River forms a broad delta, which mixes with the delta formed by the Uruguay River. The Uruguay River is 1600 km long. It originates in the Sierra del Mar, in Brazil. All these rivers are navigable along the majority of their lengths.

The **central system** is formed by interior river basins that drain into lakes or marshlands or that disappear under the surface. There are five major rivers, four of which have their sources in the Sierras of Córdoba and one with its source in the Sierra de San Luis: the Primero, Segundo, Tercero, Cuarto and Quinto rivers, names that indicate the order in which they were discovered.

The **Andean basin** is formed by the rivers that originate in the Andean range. With exceptions, these rivers are lost in lakes, small lakes or marshes. The most important one is the Dulce, or Salí, River, which originates as the Tala River. It is called the Hondo River where it moves into Santiago del Estero, and dies with the name of the Saladillo River to the north of the province of Córdoba, in the small salt lakes of Porongos. It is followed in importance by the Colorado del Norte River, which irrigates the lands of Catamarca, La Rioja, el Bermejo and Vichina, and it disappears in the lands of San Juan. Only two of certain importance reach the Atlantic: the Grande de Jujuy and the Salado del Norte.

The **Pampa basin** includes about twenty rivers of scarce importance. The most notable is the Salado del Sur River.

The **Patagonian basin** is formed by a series of rivers without great tributaries. They are more or less parallel to each other, and they descend from the Andes and run into the Atlantic. The most important ones are the Colorado and the Chubut.

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http://www.fencap.com.ar/index.php; **http://fao.org./Regional/Lamerica/paises/h2o/argentina.htm+ç**.

The following table details the main characteristics of the systems:

Watershed	System	Drained surface area (km2)	Main river basins	Mean annual runoff (10 6 m3)	Specific flow rate (l/s km2)
Atlantic	Paraná	3,092,000	Paraná, Iguazú, Santa Klucía, Corrientes, Guayquiraró, Feliciano, Gualeguay, Arrecifes.	694,770	7.1
	Paraguay		Paraguay, Pilcomayo, Bermejo		
	Uruguay		Uruguay, Pepirí-Guazú, Aguapey, Mirinay, Mocoretá, Gualeguaychú		
	Plata river and Buenos Aires Plain to the Colorado River	181,203	Plata, Salado	4636	0.8
	Colorado	92,840	Colorado, Vinchina, Jáchal, San Juan, Mendoza, Desaguadero, Tunuyán, Diamante, Atuel	10,060	3.4
	Patagonian Rivers	356,033	Neuquén, Limay, Negro , Chubut, Senguerr and Chico	61,211	5.5
Pacific	Flows to the Pacific Ocean	33,455	Hua-Hum, Manso y Pueblo, Futaleufú, Carrenleufú y Pico, Simpson, Pueyrredón, Mayer, Vizcachas, Fagnano	38,222	36.2
Endorheic Basins	Mar Chiquita, Serrana Region, Pampa and Salares	298,056		5866	0.6
Total		**4,053,587**		**814,765**	6.4

F) Groundwater. Importance.

Information is available about local aquifers, especially in the areas of Cuyo, the northwest and the Pampa regions, but not on a national level. 30% of the water used nationally is groundwater. The distribution of the aquifer systems in the Argentinean territory is conditioned by the geological structure and by climate and hydrographical factors. Four large hydrogeological regions are distinguished:

The essential characteristic of the **Inter-mountain Valleys region**, which includes the mountain range and foothills range, consists of considerable clastic sedimentary filling. They form aquifer systems with high permeability at the foot of the mountain and medium-to-low permeability in the centre of the valleys and at depth. The region mainly covers the west and northwest – Jujuy, Salta, Tucumán, Catamarca, La Rioja, San Juan, San Luis and Mendoza. The aquifer systems are closely linked to the hydrology of the rivers, whose runoffs constitute the main natural recharge. Thus, we can distinguish between the aquifer systems that discharge to the endorheic basins, where evaporation is the only natural

component of their outlets, and the aquifer systems that discharge towards the alluvial plain and run into the Atlantic Ocean.

The **Pampa Chaco Plain region** has aquifers in clastic sediments that extend throughout the region. The dominant morphology is that of plains, which vary from undulating to low and high – Formosa, Chaco, Corrientes, Santa Fe, Entre Ríos, Santiago del Estero, Córdoba, La Pampa and the Province of Buenos Aires. The groundwater resources of the region come essentially from the extensive aquifer system called the Puelches, which includes three superimposed and interconnected aquifers: the Epipuelches or Pampeano, the Puelches and the Hipopuelches or Paraná.

The **Meseta Misionera region** includes the Province of Misiones and part of the Province of Corrientes. The aquifers form a part of a mega aquifer with an estimated area of 1.5 million km2, which occupies part of the territories of Brazil, Paraguay, Uruguay and Argentina. Regionally, it is known as the Acuífero Guaraní. The total surface area of the aquifer is calculated at one million one hundred ninety thousand square kilometres, and it is divided as follows: 225,000 square kilometres in Argentina, 850,000 in Brazil, 70,000 in Paraguay and 45,000 in Uruguay. The Acuífero Guaraní is probably one of the largest freshwater reservoirs in the world. It extends throughout the subsoil of Argentina over an area of 1,400,000 km2, and its water potential is around 40,000 km3. It has the capacity to permanently supply 15 million inhabitants of the area it occupies and to encourage agricultural, industrial and tourism development in the region. Although in our country many of its aspects have yet to be investigated, it is highly used in Brazil and Uruguay.

The **Mesetas Patagónicas region** extends from Tierra del Fuego to the Río Colorado, including the provinces of Neuquen, Río Negro, Chubut, Santa Cruz and Tierra del Fuego. The aquifer systems include the formations of Rodados Patagónicos, the basaltic mesas and the alluvial valleys of the rivers that originate in the Patagonian Range.

G) Mean Supply Endowments.

Agricultural irrigation consumes 18 billion m3 of surface water and 6 billion m3 of groundwater per year. Livestock uses 1 billion m3 of surface water and 2 billion m3 of groundwater per year. The water supply for the population uses 3.5 billion m3 of surface water and 1 billion m3 from groundwater sources per year. Industrial use consumes 1.5 billion m3 of surface water and 1 billion m3 of groundwater per year. Irrigated farmland in Argentina totals 1,500,000 hectares.

H) Percentage Distribution for Various Uses.

The main consumptive use in Argentina is agriculture, with domestic and industrial uses constituting lower consumption. Irrigation makes up 70.5% of the total, followed by potable water (13%), livestock watering (9%) and industrial consumption (7.5%), approximately (2005).

2. General Introduction.

This document attempts to specify the concepts of government, administration and management in public law, and it seeks to point out the specifics of management and the difficulties that it has in federal countries where there are multiple power centres with different degrees of competency, based on equality. This is contrasted with unitary regimes in which the concentration of power – based on a pyramid of authority and control – allows exercising what is established as the water policy (as a general rule, though not always).

To avoid confusion, it should be pointed out that in this report, the term "government" means the higher authority function of the state, which includes and groups together the activities of all other bodies (executive, legislative and judicial). As Bielsa states, governing is executing, legislating and judging. The term "administration" means the structure of the entities – the ministries, secretariats, directorates, etc. – that comprise an organisational system, whether decentralised or not and whether federal or unitary, which serves as an instrument of the government. The term "management" means the action, the work, the doing of the administration. It is the function itself. It is where the process initiated by the political decision culminates; it is where the utility or failure of any policy is actually verified. Management reveals if a government does or does not, if the administration as a structure serves or not and if the adopted decision is correct or not.

The concept of administration by river basin was incorporated last century (1920) for water management, arranged according to the geography and the hydrogeography. The idea was progressively developed, and the river basin came to be considered a region/plan, and elements other than water – natural and socio-economic – were incorporated into it as a determining factor of the interdependence of its natural elements. In recent years, this idea mutated, and the environmental/sustainable dimension was incorporated. So today, the river basin has taken on a vision that is linked to ecology, to the economics of resources and to other socio-cultural aspects, rather than the science of administration and, more specifically, the science of water.

This vision must be restated, because in the contemporary reality, the territory – the land resource – has new geopolitical value as an adjuvant to the solution of the food crisis. Agricultural irrigation and human water supply are more important than 50 years ago with respect to the crisis and the current water rights of thirsty people. We are facing a substantial change from the society of knowledge:

we are facing the society of the food crisis, which requires essential elemental inputs, with a never-imagined escalation of the prices of raw materials and of energy in a globalised world. And therefore, the law of the books must open up to the law of reality and of action, and it must be capable of efficiently and quickly resolving the urgent problems of the society in which we live.

Currently, integrated water management and administration by river basin cannot continue to be exercised as an intellectual exercise of planners, political scientists and administrators. The means must be mediated so that water arrives, so that water lasts, so that water does not become polluted and so that its use is rational and efficient. In other words, a method, a way and other channels must be found so that water is managed well, sensibly and with social equality. Far from bureaucratic administrative structures and from theoretical organisational systems that hinder efficient and sustainable administration.

A description of the situation in Argentina, in the various fields of water resource management, shows a disheartening reality. The federal scheme of government hallowed by the National Constitution is not being achieved, and it is not recognised by the powers of the state due to historic, political, economic and social reasons.

Regarding the integrated management of water resources by river basin, we explain that the results have not been satisfactory to date. It would seem that the system is more in line with unitary regimes of government. The plausible initiatives that have been carried out were frustrated by the political instability of the last 50 years, by the discontinuity of state policies, by a lack of financial resources, by local preferences, by federal political centralism and by a lack of trained human resources.

II. Water Management in Federal Countries. The situation in Argentina.

1. Argentinean Federal Scheme.

Article 1 of the Argentinean constitution determines the political structure of the state when it states that the "*Argentinean nation adopts for its government the federal, republican representative form…*"

The federal form of government is the result of a union of provinces, from which two orders of government arise: the national or federal and the provincial. This federal government is integrated by the executive power; the legislative power, consisting of a congress of deputies who represent the people and a congress of senators who represent the provinces; and finally by a judicial power, consisting of the National Supreme Court of Justice – and the lower federal courts – as the final interpreter of the constitution.

An essential premise is derived from the aforementioned: the federal scheme of government is based on the faculties and rights of the provinces as autonomous entities pre-existing before the nation, which have delegated to it the necessary faculties for the operation of the central power and administration.

The aforementioned corresponds to the provisions set forth in Article 121 of the National Constitution: "*The provinces reserve all power not delegated by the constitution to the federal government and the power that has been expressly reserved by special pacts at the time of their incorporation*", meaning the inter-provincial pacts and treaties signed prior to ratifying the constitution.

These principles make up the essential rule of interpretation for understanding the scope of Argentinean federalism in the event of conflict between both orders of government: national and provincial.

The nation has express, limited and delegated powers in order to assure unity, national sovereignty and general well-being, and they are exercised by the central government exclusively (Article 75 and the clauses thereof, CN [*National Constitution*]). By virtue of these powers, the federal congress can issue the civil, commercial, penal, mining and social security codes (Article 75, sec. 12 CN).

In turn, the provinces have reserved the necessary rights for the organisation and operation of their local autonomous governments, which make up the so-called "*Non-delegated Powers*" or exclusive faculties (Articles 121 to 125 CN), with the faculty to organise the local administrations (executive, legislative and judicial), an autonomous municipal scheme and the recognition of the eminent domain over the natural resources existing in their territory.

Furthermore, there are "*Implicit Powers*" or concurrent faculties, a kind of extension of Congress's conferred powers that are implicit in the faculties delegated to the nation (Article 75, sec. 32 CN). They are powers that are directed at achieving prosperity, progress and general well-being. It is a flexible scope of competences that has be used for the permanent servitude of the provincial autonomies. The exercise of such faculties, supposedly, should not invade the conferred powers of the provinces, or the competences or powers reserved for them (Articles 121 to 125 CN), such that the exercise thereof is what is strictly necessary so that the central government can make use of its conferred powers. As Sagües affirms, the functions that can be undertaken by the provinces must be assigned to them and not to the federal state – the Principle of Subsidiarity of the Federal Scheme.[2]

We have maintained on another occasion that we can add to the indicated faculties, as a more distorting factor of the conferred powers of the provinces, the generic competency of management that the executive power of the nation has indirectly by virtue of Article 99, sections 1 and 2, as the Commander-in-Chief of the nation, of the government and of the national administration, who, through instructions and

[2] SAGÜES, Pedro (1980), pages 775-776.

regulations for executing national laws and for issuing decrees of necessity and urgency, inhibits provincial competences and alters the constitutional system of division of powers.[3]

With the constitutional reform of 1994, a fourth category of powers appears, which are the "*Municipal powers or faculties*" that arise from the autonomous nature that municipalities now have. They possess their own administrative territory, they dictate issue administrative-organisational laws and their own budget, they collect their own funds, and they approve standards of mandatory compliance within their jurisdiction.

The outlined federal government system generates multiple conflicts of competency and jurisdiction, because legislative, judicial and administrative powers are exercised over water in the same territory by the state, provinces and municipalities. Added to this are the disputes generated by virtue of inter-provincial agreements – for example, linked to river basin bodies – and the various differences of opinion that can be caused by the application of international treaties that involve water resources that, according to the National Constitution and with the approval of congress, eventually become a part of internal law with a superior hierarchy to that of all other national laws. Suffice it as an example to cite the current dispute with the Republic of Uruguay by application of the treaty that regulates the use of the waters of the Homómino River, a dispute that is currently before the Hague Court.

2. Water and the Federal Scheme. Distribution of Competences.

The national congress, in accordance with the faculties that were delegated to it, approved the civil code, which classifies water as a thing by itself with respect to the rights or regarding the people to whom it belongs. Wherefore, water is public or private. The indication that water belongs to the public domain is therefore a conferred power of congress.[4]

From the aforementioned, it turns out that the civil code uses the legislative technique of exclusion: the assets not listed in Article 2340 belong to the domain of private individuals.

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[3] MATHUS ESCORIHUELA, Miguel (1995).

[4] Article 2340 of the Argentinean Civil Code, amended by Law 17,711, states textually: *"Public goods include the following:*
1) The territorial seas up to the distance determined by special legislation, independently from the jurisdictional power over the contiguous zone;
2) The interior seas, bays, inlets, ports and anchorages;
3) Rivers, their channels, all other waters that run in natural channels and all other water that may have or accquire the capacity to satisfy uses of general interest, thereby including groundwater, without prejudice to the regular exercise of the right of an owner of rural property to extract groundwater to the extent of their interest and subject to rules and regulations;
4) The beaches of the sea and the internal shores of rivers, which are hereby understood as the extent of land that the waters cover or retreat from during normal high tides or ordinary mean rises;
5) Navigable lakes and the beds thereof;
6) The islands formed or that may be formed in the territorial sea and in all kinds of rivers, or in navigable lakes, whenever they do not belong to private individuals;
7) All streets, plazas, roads, channels, bridges and any other public work constructed for common utility or comfort;
8) The official documents of the powers of the state;

In conclusion, the eminent and exclusive domain over waters and all other natural resources in the entire national territory corresponds to the provinces (Article 124 CN). They also hold jurisdiction except for those subjects delegated to the nation. It behoves us to specify both concepts.

As Joaquín López affirms[5]: "*the problem with provincial water domain involves solving the jurisdiction problem. The public domain cannot be exercised if jurisdiction is not held, because jurisdiction gives life to domain as power. Without jurisdiction, there is no effective domain*". "*Jurisdiction has more power than domain*", Pedro Frías states[6].

We maintain that jurisdiction regarding water – management in the broad sense – as the power to regulate the legal relationships linked to the use of, defence against effective damage by and preservation of water, corresponds to the provinces (Articles 121, 122, 124 and the clauses thereof, CN; Articles 2340 and the clauses thereof, Civil Code [*CC*]).

This principle recognises the delegated faculties as an exception, namely:

- inter-provincial and international navigation and trade (Articles 12, 26, 75, section 10, and 14 CN), including the authorisation of ports and customs;
- International relations and the signing of international treaties (Articles 27 and 25, sec. 22, and 24 CN).
- cases of admiralty and maritime jurisdiction (Article 116 CN) that include the crimes that take place in ports, coasts and on the high seas on ships subject to national jurisdiction; and contracts and matters that are related to maritime trade and navigation. This jurisdiction likewise extends to navigable lakes and rivers, as long as they serve for inter-provincial trade;
- the provisions set forth in the civil, penal, commercial, mining and labour and social security codes (Article 75, sec. 12 CN);
- jurisdiction in the territories and places acquired by the nation by purchase or assignment (Article 75, sec. 30 CN) that are establishments of national utility.

The inter-provincial rivers that pass through or boarder two or more provinces are of the provincial domain, and regulating the use thereof corresponds to the provincial jurisdiction, which must be stipulated in inter-provincial treaties that do not require the approval of congress (Article 12 CN). Eventual conflicts regarding the use of water must be referred to the National Court of Justice. There is abundant national case law for and against the preceding interpretation[7].

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9) All archeological and paleontological ruins and finds of scientific interest".
[5] LÓPEZ, Joaquín (1975), pages 1013 and those that follow.
[6] FRIAS, Pedro J. (1980), p. 113 and those that follow.
[7] FRIAS, Pedro (1975); p. 796; GONZÁLEZ DEL SOLAR, Nicolás (1997); and BENGOLEA ZAPATA (1975), p. 1274.

Wherefore, as a general rule we would point out that water management corresponds to the provinces, with the stated exceptions.

3. The Constitutional Reform of 1994. Effect on Water Management.

The constitutional reform of 1994 incorporated in Article 41 the so-called "Environmental Clause"[8], which confirmed another exception to the general rule of provincial competency regarding water by establishing that the nation is responsible for the minimum standards of environmental protection and that the provinces are responsible for the necessary laws to complement the former, without thereby altering local jurisdictions.

Thus, a concurrent path of exercising national-provincial competences was established, and it breaks the principle of exclusivity as a technique for conferring powers and responsibilities between both governments.

Some authors maintain that, hereinafter, the exercise of the provincial faculties regarding water will have to recognise the superiority of the international treaties and of the national laws that may be issued as a result thereof, in accordance with the powers conferred to the national congress (Article 75, sec. 18 and 19; and Article 32 CN), which confer to it the power to legislate environmental protection, the rational use of natural resources (therefore, water), the preservation of the natural heritage and biological diversity and environmental information and education. They thus affirm that the domain of the national legislative power must not be disputed in order to organise the rational use of an essential resource, such as water[9]. We disagree with this pro-centralist interpretation.

The reform failed to comply with the purposes that were authorised by the call for the Constitutional Convention, which in the so-called *Núcleo de Coincidencias Básicas* ["Joint Government Council"] for reform (Law number 24,309), stipulated that the first part of the constitution must be respected, called the dogmatic part, and that only a law of environmental preservation should be approved,

[8] Article 41 of the National Constitution states the following: "All inhabitants enjoy the right to a healthy and balanced environment that is suitable for human development and in which production activities satisfy present needs without compromising those of future generations; and they have the duty to preserve it. Environmental damage will generate the priority obligation to repair, as established by the law. Public authorities will provide for the protection of this right, for the rational use of natural resources, for the preservation of the natural and cultural heritage, for the preservation of biological diversity and for environmental information and education. The nation is responsible for issuing the laws that must contain the minimum standards of protection, and the provinces are responsible for the necessary laws to complement the former, without thereby altering the local jurisdictions. Currently or potentially hazardous waste and radioactive waste is prohibited from entering into the national territory".

[9] GONZÁLEZ ARZAC, Felipe (2004), pages 61 and those that follow.

wherefore by expanding the conferred powers of the national government (Article 41 CN), the ordinary scheme of distribution of provincial powers in the historical constitution was altered (previous Article 104, now Article 124 CN).

By virtue of the reform, the national congress approved a General Environmental Law (Law Number 25,675) and the so-called Environmental Water Management Law (Law Number 25,688), which are linked to the subject at hand. Both laws disrupt the water management scheme of the provinces.

A) Laws 25,675 and 25,688 of Minimum Standards. Conflicts of Nation-Province Water Management.

a). Law Number 25,675.

The so-called General Environmental Law contains a general plan of application in the entire country. It has been invoked by jurisprudence as the basis for important decisions: in principles of environmental policy – the principle of prevention, precaution and sustainability – and in procedural rules on active legitimisation in cases of collective environmental damage and regarding the expansion of the powers of the judge involved.

The law assumes that everything linked to environmental policy and to environmental management, biological diversity and sustainable development is comprised in the Minimum Standards of Environmental Protection. Environmental policies and management – obvious regarding water – have never been delegated to the nation, and they cannot be imposed upon the provinces by the law of the nation, nor can local jurisdictions be altered. Within this order of ideas, Article 41 of the National Constitution does not stipulate concurrent competency, but rather complementary granting of powers within the scope of the competences reserved for the provinces (Article 121 and the clauses thereof, CN). Therefore, the minimum principles must be agreed between the nation and the provinces.

Thus, Article 2, when it establishes the objectives of the law, refers to the preservation and recovery of natural resources – a provincial faculty – and to the rational and sustainable use of natural resources – a provincial faculty. In other words, it refers to the principles of management and of policy instruments, eminently local, that involve water.

The law states that its provisions are of public order, and they will be used to apply and interpret legislation on the subject, which will remain in force as long as it is not opposed to the principles and provisions contained in the law. Thus interpretative submission regarding the validity and force of laws dictated by the provinces, within the scope of their jurisdictional faculties regarding national resources of provincial domain, on subjects of their competency and by local bodies constitutionally empowered to do so, is grossly unconstitutional (Articles 121 and 122 CN). The law ratifies the Treaties of

the Federal Environmental Pact and the treaty on the creation of the Federal Council of the Environment – which were prior to the law and in which the nation accepts, recognises and consents to the personality, status and environmental faculties of the provinces, which have, by constitutional mandate (Article 75, sec. 18, and 19 CN) superior hierarchy to the laws of the congress, and therefore neither the minimum principles nor policy principles can dispense with the opinion and prior conformity of the provinces.

The law is illegal because the substantial content of the subjects that it regulates is delegated to the national executive for compliance therewith; an improper delegation that violates the division of powers, prohibited by the constitution itself (Articles 28, 29 and 31 CN).

By establishing collective environmental damage, it only grants recognition to the affected party, to the public defender and to non-governmental associations of environmental defence and to the aggrieved. But if a suit is withdrawn by any of the enumerated parties, it cannot be filed by those who remain, who may take part as third parties, wherefore the right to defend the rights in trial is restricted, and it ventures into judicial procedural standards that are the domain of the provinces. Finally, it creates a compensation fund to cover environmental damages and to solve environmental recovery while not recognising provincial faculties.

b). Law Number 25,688.

The Environmental Water Management Law is not a law for the protection of water resources. That protection is provided through the exercise of the power of the police as the regulatory authority of rights; through the application of limitations on ownership (administrative restrictions and easements, temporary occupation, expropriation); through the provisions of the civil code, penal code and Hazardous Waste Law, which appertain to the protection of water and the prevention of the degradation thereof. In other words, basic institutions of administrative law, which is eminently local, or substantive national legislation, but the application thereof is the jurisdiction of the provincial authorities (Articles 28 and 122 CN; Articles 2611, 2618, 2499 and the clauses thereof, CC).

The law does not contain minimum standards pertaining to water for the preservation thereof, so provinces complement them with their own legislation. These would be, for example, standards regarding quality, EIA rules when they affect water resources, the organisation of a national system of water evaluation and registration, etc. And it is reproachful, as a legislative technique, that the law defers – as in the case of the previous law – all regulations of substantial legislative application to the applying authority, namely to the national executive power, thereby granting legislative powers to the executive body. In this case, as in others unrelated to this study, the executive power, by legislative delegation, usurps the powers of the congress, corrupts the mandate of the constitution or openly regulates *contra legem.*

All rules about water use and management – concessions, permits, financial charges, imposition of easements, etc. – are subjects of provincial jurisdiction (Articles 121 and 122 CN; Articles 2611 and the clauses thereof, CC).

The various categories of water, the various ways in which it is present in nature and its legal status are already legislated in the Civil Code (Articles 2340, 2350, 2637 and the clauses thereof, CC). The concept of "river basin" is erroneous, because it overlooks the groundwater that is integrated in the basin and dispenses with referring to the alluvial cone or delta, which is a territorial space that it includes. The river basin is not an environmental management unit. The environmental management unit is the ecosystem and the river basin always contains several ecosystems and two or more sub-basins, which is evidence that it is divisible, and it is good that it is this way for better administration of the resources – topographical, social and economic reasons justify them.

Article 4, which allows the national executive power to create river basin committees in the case of inter-provincial rivers, is illegal, given that is the sole and exclusive power of the provinces to do so, due to the fact that they exercise domain and jurisdiction in their territory and over the water that runs over, limits or passes through the same.

With respect to the granting of permits and concessions and with respect to rules about Environmental Impact Assessments (EIA), which the law puts at the head of the river basin committees, they are unconstitutional, with the aggravating circumstance that Article 6 claims and takes for granted the consent of the various jurisdictions (the provinces), which, it must be said, became aware of the existence of this law when it was published in the Official State Gazette.

The Province of Mendoza has appealed before the National Court of Justice (Case M-391 "Province of Mendoza versus the National State p/ Action of Unconstitutionality"), thereby requesting the declaration of the unconstitutionality of the Environmental Water Management Law and maintaining that the congress has exceeded its competency by virtue of the aforementioned Article 41 of the National Constitution, thereby invading subjects that are of the provincial domain and jurisdiction (Articles 121 to 124 CN). At least three bills have been presented in the national congress, which are pending, and they set forth the repeal of the law.

4. Competency for Delineating the Public Domain. Effect on the Water Scheme and Water Management.

Regulations on water domain affect legal security, rights of use and the faculties of the administration regarding the governance of water. Therefore, they have an impact on the efficiency of use

and on sustainability. Delineating the public domain means establishing its extent, where the private domain begins, and determining which public authority has the competency to do so.

Along water courses – rivers, brooks, streams and runoffs – the public nature of the bed extends to the shoreline, which is "the line that is reached by the highest waters in the normal state" (Article 2577, according to Article 2340, sec. 3 of the CC), which in our opinion is no different from the concept of "ordinary mean rises" stated in section 4 of Article 2340.

The shoreline is the limit between the public domain and the private domain.

Properties that abut navigable waterways are subject to the restriction of the tow path or river path, in benefit to navigation aid, and they must leave a street or road of 35 metres wide as from the shoreline (Article 2639 CC). Some authors consider the tow line to be a special easement[10]. Whether a restriction or an easement, we think that it is a limitation established in public interest, and it is therefore governed by administrative law, under local competency.

It would be beneficial to explain which public authority holds jurisdiction in Argentinean federal law to establish the legal shoreline. Article 2750 of the Civil Code establishes that the demarcation of the rural properties belonging to the public domain corresponds to the administrative jurisdiction. Therefore, the "provincial" administrative authority holding title to the domain has competency to establish the shoreline, and it has competency in the area of water resources. In summary, the territorial management of ownership – both establishing the shoreline and the demarcation of the tow line – is local, provincial.

Having accepted this as a general principle, we nevertheless think that, concerning navigable water courses – of provincial domain – and with jurisdiction delegated to the nation regarding navigation – inter-provincial and international – customs, the authorisation of ports and port security (in accordance with Article 75, sec. 10 CN), there is room for "complementary" intervention by the national administration with respect to establishing the shoreline and, eventually, for competency by the federal justice system – purely a question of fact to be resolved according to the circumstances of the case – due to the impact that the demarcation could have on the operation of ports and on navigation.

In the case of artificial canals – which are public assets constructed for utility or comfort, in accordance with Article 2340, section 7 of the Civil Code – the shoreline will be given by the construction drawing of the project. If they are navigable in a province, the competency is provincial; if they are inter-provincial, the competency will be concurrent between the provinces and the nation.

[10] BIELSA, Rafael, p. 72; BIELSA, Rafael, p. 199; CORTI VIDELA, Alberto (1936), p. 352; and BIBILONI, Juan Antonio (1921-1932).

Navigable canals are also subject to the restriction of the tow line in Article 2639 of the Civil Code.

In the case of lakes, Article 2578 of the Civil Code states that frontage residents do not acquire the land uncovered by a decrease of water, and they do not lose the land covered by water during rises. In other words, it establishes the mean line as the shoreline. Navigable lakes that are public assets by virtue of Article 2340, section 5 of the Civil Code belong to the provincial domain, and the local public authority holds competency to establish the shoreline, without prejudice to federal jurisdiction because of inter-provincial and international navigation, the authorisation of ports and customs matters. The shores of navigable lakes belong to the private domain (Article 2578 CC), and the land abutting them is encumbered by the limitation imposed by Article 2639 – tow line – which has already been mentioned.

Non-navigable lakes are also public by virtue of the general principle of publicity of waters contained in Article 2340, section 3, and because the waters that give rise to them are either underground or superficial, and in both cases they are public waters because of the same article. Establishing the shoreline will correspond to the provincial administrative authority of the place where the lake is located. The shores of non-navigable lakes are free from any encumbrance, but the administrative authority, for reasons of public interest, can impose restrictions or easements linked to use by private individuals – for example, right of way – for the common use of public waters (Article 2611 CC).

On international water courses, the situation in Argentina is complex, because there are numerous rivers that form a part of basins shared with all bordering countries – Chile, Bolivia, Paraguay, Brazil and Uruguay. In some cases, Argentina is the country downstream, and in others, it is the country upstream, in certain places, the rivers are contiguous and in others, they are the borders. Some have their own statute, such as the Uruguay River. Others, such as the Río de la Plata, are governed by treaties (the Brasilia Treaty in the Plata River Basin), or the treaty signed with Chile referring to Patagonian Continental Ice – 17,000 km2 on three watersheds: one closed, one to the Atlantic and another to the Pacific. On the other hand, Mixed Bi-national Commissions – for the Paraná River, the Pilcomayo River, etc. – work to resolve problems on the demarcation of limits, navigation, flooding and other uses.

This complex subject is the exclusive competency of the federal administration (Articles 27, 75, section 15, and 22 CN), but the provinces maintain their domain over such rivers and maintain their jurisdiction in non-delegated matters. A discussion of them is beyond the scope of this study[11].

5. Management on Inter-provincial Rivers.

[11] For a complete and comprehensive treatise on the subject, see CANO, Guillermo J. (1975).

By virtue of the provincial domain over rivers (Articles 104 and 124 CN), in the event that they may be inter-jurisdictional, the provinces are responsible for managing the use and preservation of their waters through treaties or conventions, thereby taking into account the equal right of all other provinces, the conditioning factor imposed by the Civil Code to exercise rights in a non-abusive manner, which means functionally (Articles 2513 and 2514 CC) and the international principles regarding equitable and reasonable use of waters if they cause notable damage.

In 1977, the provinces of the Río Colorado Basin – Mendoza, Neuquén, La Pampa, Río Negro and Buenos Aires – signed the Río Colorado Treaty, thereby agreeing to equitable distribution of the volumes of the river basin and the creation of an inter-jurisdictional entity called the "Inter-jurisdictional Committee of the Río Colorado". The treaty was approved by law by each one of the provinces.

The provincial domain over rivers and the jurisdictional powers of the provinces have been repeatedly recognised by the National Court[12].

There are two cases in progress before the national court and a third one currently in progress before the tribunal in which conflicts are posed regarding the domain, jurisdiction and management of water.

A) Province of Buenos Aires versus the Province of Santa Fé.

The conflict arose between the provinces of Buenos Aires and Santa Fé due to the diversion of water by Santa Fé in the south of the province towards the Salado River basin, the result of which is flooding in the northwest territory of the province of Buenos Aires, thereby causing major damage.

Water is distributed from Laguna La Picaza in the territory of Santa Fé for the purpose of preventing the flooding and inundation of its own land, for which it diverts the excess.

The court declared that it held jurisdiction in the trial by virtue of Articles 17 and 127 of the National Constitution, because there was a conflict between provinces. It granted the protective measure requested by the Province of Buenos Aires so that, while the main problem could be resolved, Santa Fé would proceed to plug the waters at the various points in its territory where water is diverted to the territory of the province of Buenos Aires – the Salado River basin – in order to stop causing the floods. An Inter-jurisdictional Committee has been created – not a river basin authority – which will be responsible for monitoring and managing the solution to the problem.

[12] *Rulings of the National Supreme Court of Justice*, decisions published in the T. 111, pages 190-193 and pages 256-260, and *Rulings of the National Supreme Court of Justice*, decisions published in the T. 120, pages 165; T. 126; pages 98-99; T. 134; p. 292 and T. 154; pages 317.

B)
Province of La Pampa versus the Province of Mendoza, per Possessory Action, Case 195-L.

In this case, the Province of La Pampa maintained the inter-provincial nature of the Atuel River, which originates in the Province of Mendoza. It affirmed that, historically, its waters entered the territory of La Pampa, thereby providing an important supply of water to the Salado River, and they ceased to enter due to the various consumption and non-consumption uses that Mendoza made of the waters in its territory.

The court declared that it held jurisdiction in the conflict, and it recognised the inter-provincial nature of the river. It declared the uses made by Mendoza to be valid and final, and it urged both provinces to agree on solutions for the future use of the water. As a result, in 1992 both parties and the nation signed a convention whereby Mendoza undertook to deliver water to La Pampa for human consumption in two cities.

C) National Parks Administration versus the Province of Neuquén, per Preliminary Investigation. A-105-XXXV

In this case, the APN – an autarkic entity of the national government in charge of administrating the national parks whose territories are of the national domain – sued the government of the Province of Neuquén for the jurisdictional acts that the province exercises over the Limay River.

The APN maintains that the Limay River, which currently goes through the national park area, over land that used to be of the national state, continues to do so even after making the territory part of the province, and it affirms that the nation is the holder of the water domain and that the river belongs to it.

The Province of Neuquén maintained provincial domain over the river and maintained its right to fully exercise jurisdiction within its territory and therefore its jurisdiction over the river even though it passes through territory of the national state. It affirmed that, with approval of Province Creation Law number 14,408, the national state transferred to the province the land and water and all other assets that were comprised in the national assets existing in the territory. The court, in an unheard-of decision that violates the National Constitution, affirmed that the Limay River is of the national domain headed by the APN and that the Province of Neuquén must abstain from exercising jurisdictional acts over the same.

In our opinion, the court has likened the situation of domain and jurisdiction over the river to the supposition of rivers of successive channels – as in the aforementioned case of the Colorado River – which is inapplicable, because the constitution, the national state and the court itself have always recognised that rivers are of the provincial domain and that there are no waters of national domain, except for maritime waters over which the nation exercises sovereignty.

6. Management of Hydroelectric Use on Inter-provincial Rivers.

A) The Conflict on the Atuel River.

The Atuel River originates to the south of the Province of Mendoza, it passes through the territory, and in years when there is excess volume, it enters the Province of La Pampa. In the territory of Mendoza, one section of its river bed undergoes considerable elevation changes – topographical gradients – that have allowed four hydroelectric plants to be installed (Nihuil I, II, III and IV). The Province of Mendoza has always sustained that such gradient, in its territory, is the hydroelectric source that allows energy generation and that it is the province's own natural resource.

Article 5 of the National Electric Energy Law defines the energy from waterfalls as a legal thing, different from the water, and Article 43 – amended by Law 23,164 – assigns to the provinces where electricity is generated twelve percent (12%) of the amount received by the licensee that results from applying to the energy sold the rate corresponding to a block sale on the spot market.

In the case of hydroelectric sources that are located on bordering rivers between provinces or that pass through more than one province, that percentage will be distributed equitably between them. The law thus provides for a criteria of participation among the provincial states in which the hydroelectric source is located. We should note that this law has been rejected as unconstitutional by the provinces due to imposing federal jurisdiction over resources of provincial domain and on a non-delegated subject.

In 1973, the national government issued Decree 1560, which ordered payment to the Province of La Pampa of fifty percent (50%) of the hydroelectric royalty that Mendoza had been receiving from the generation of energy at the Nihuil hydroelectric complex, thereby resolving what had been requested by La Pampa in this regard years before. The Province of Mendoza challenged the decree before the National Executive Power, whose final resolution is binding and concludes the administrative channel, after which an appeal can be filed before the National Court of Justice. This case has been in court for 34 years, during which time the parties have filed petitions and allegations of all kinds, and no final decision has yet been given.

B) The so-called "Chaco Case".

This case refers to the "Province of Chaco versus the National State according to the action to declare real rights" regarding the payment of the hydroelectric royalty derived from the use of the Paraná River at the Yaciretá hydroelectric complex. In it, the province maintains the unconstitutionality of the national decree that regulated the payment of a hydroelectric royalty in cases of bi-national use and that approved the convention signed between the nation and the Provinces of Corrientes and Misiones for distribution of the royalties.

The province questions the decree because it recognises the right of only those two provinces to receive royalties. It maintains that a province holds the water domain and that, over the Paraná River, there is co-domain or a shared right of use between the riparian provinces. The interpretation of the Energy Law has given rise to two opposing opinions: the river theory and the source theory. The first maintains that all riparian dwellers of a common water course have the right to equitably and reasonably receive the royalty. The second theory only grants that right to the river dweller(s) on the river section where the waterfall – source – is located, and all others are excluded. It considers that the text of Law 15,336 and the amendment thereof (Law 23,64) recognise that right to all provinces – the river theory – and it affirms that that has been the criteria followed by the court in the case of the Atuel River.

The national state, upon responding to the suit, highlighted that it exercises jurisdiction over the Yaciretá hydroelectric operation, which includes using and regulating the energy source; that the regulatory framework (Law 15,336 and the clauses thereof) provides that only the provinces in whose territories the hydroelectric sources are located have the right to receive a royalty; that the legislator of Law 15,336 adhered to the source theory; that the law has federalised the energy from waterfalls; and that the decision of the court regarding the Atuel River is not applicable to the case, because in this case it questioned the consumption use that Mendoza made of the river's waters.

The court dismissed the suit, and it interpreted that for distributing the bi-national hydroelectric royalties of Yaciretá, the criteria of the challenged decree for distributing the royalty is based on the location of the source.

We think that the decision does not explain the concept of hydroelectric source – as a physical fact that generates the payment obligation. The royalty does not compensate the use of the mechanical power generated by the water – as the court maintains – or the energy from the fall, or the potential energy from the river section where the enterprise is located. What is being paid by the royalty is the use of the topographical gradient, the level change of the land – the fall – whereby and due to its physical effect, a certain volume of water is capable of generating energy. This natural resource – the gradient formed is based on the land resource, but it is different – is a resource that is different from water that "falls" by itself, and obviously it is owned by the province where it is located. This is why Amilcar Moyano rightly affirms that, if a river is understood as a hydroelectric source and if the owners of the river are paid for the use, it should be understood that Newton's law no longer exists and that ownership is no longer a right[13].

7. Management of Use on the Argentinean Sea.

[13] MOYANO, Amilcar (2006), pages 209 and those that follow.

Article 2340 of the CC states: *"Public goods include the following: 1) The territorial seas up to the distance determined by special legislation, independently from the jurisdictional power over the contiguous zone… inc. 4) The beaches of the sea and the internal riverbanks of rivers, which are hereby understood as the extent of land that waters cover or retreat from during normal high tides or ordinary mean rises"*. The code has not provided a solution regarding national or provincial ownership of the sea. In the draft prior to Law 17,711, the code included as public assets the sea adjacent to the territory up to 3 nautical miles from the lowest low tide line, and it provided 12 miles, determined the same way, as the sea jurisdiction for exercising the police power regarding security and observance of tax laws.

Thus, the civil code, in its current version, refers us to derived special legislation that is contained in various laws:

- **Law 17,094**: it extended the sovereignty of the nation over the adjacent sea up to 200 nautical miles and over the continental shelf – sea floor and subsoil – determined as from the base line or from the chord that encloses the gulfs of Nuevo, Santías and San Jorge. The base line is the line as from which the dry territory of the state begins. As from 200 miles, the open sea or high seas begin.
- **Law 24,543**: it approved the UN Convention on the Law of the Sea (Montego Bay, 1982);
- **Law 24,922**: it implemented a new scheme of nation-province relations. It gave provinces with a maritime coast the domain over the biological resources of the interior waters and of the territorial sea adjacent to their coasts up to 12 nautical miles as from the base line. This domain is, for exploration, use, conservation and administration purposes, within the legal framework established by the law. It is therefore a limited faculty, because Article 4 of the law defines the exclusive domain and jurisdiction of the nation over the biological resources of the Exclusive Economic Zone (EEZ) as from 12 miles. The important innovation made by the law is the creation of the Federal Fishing Scheme under the responsibility of the Federal Council, which is integrated by the provinces that have a maritime coast and which is in charge of administering the fishing resources. The provinces receive at least receive fifty percent (50%) of the fish catch duties in the EEZ.

The authors have discussed the subject of domain over the continental shelf and the adjacent sea up to 200 miles: both for and against provincial domain and jurisdiction. We adhere to the federalist or provincial thesis, and we think that the provincial territory – therefore domain and jurisdiction – extends beyond the coast, in waters, floor and subsoil – and the content thereof – up to 200 nautical miles measured from the base line.

In brief, up to 12 miles the domain and jurisdiction belong to the province, but there is concurrent jurisdiction with the nation. Beyond 12 miles, the domain and jurisdiction are exclusively

national up to 24 miles (contiguous zone), and the Exclusive Economic Zone (EEZ) extends from there to mile 200.

The stated legal scheme violates the system of domain and jurisdiction that we have interpreted when commenting on Article 124 *in fine* of the National Constitution. The eminent domain of the provinces over the natural resources existing in their territories – in this case, the territorial sea, the sea bed and subsoil – prevents the national state from claiming domain and competency over these resources.

The competent jurisdiction for determining the so-called "base line" – we believe – is held by the province. Nevertheless, legislation to the contrary has been agreed to and lawfully approved by the provinces. That base line marks the start of the dry continental territory, and therefore, as we have previously stated, it is the competency of the provincial state, without disregarding eventual concurrent powers of the nation (Article 75, sec. 15 CN).

8. Management to Prevent the Damaging Effects of Water.

The damaging effects of water as a result of floods, erosion and the alteration of river channels are highly important in Argentina. It mainly affects the entire northeast region – the provinces of Formosa, Misiones, Chaco, Corrientes, Santa Fe, Entre Ríos and Buenos Aires. The northwest region of the national territory also suffers from these events periodically – Jujuy, Salta and Santiago del Estero.

It is particularly a regional problem – national and international – in the Plata River Basin, because most of the time the cause of the flooding is located in the south of Bolivia, in the eastern region of Paraguay and in the southern states of Brazil, namely the upper basin of the Paraná River and its tributaries. In the northwest provinces it coincides with the heavy summer rain season.

It is not a natural problem derived from rainy climatic cycles, rather it is due to man-induced causes: deforestation, expansion of the agricultural frontier, erosive agricultural practices, an increase in urban development and large roadway construction projects. Norman Bourlag – a Nobel winner, father of the green revolution for his discoveries regarding the genetics of wheat – commented on the erosive process on the Plata River Basin. He stated that the River Basin of the Plata is going to sea via the Plata River[14].

[14] KUGLER, Walter F. (1984).
Ambiente y Recursos Naturales Magazine; Published by La Ley; Bs. As.; 1984; Vol I; Nº 3; pages 36 and those that follow.
"Some figures are eloquent: deforestation during the previous century in Bolivia reached 1 million hectares; in Brazil more than 50 million hectares; in Paraguay more than 1.5 million hectares, and in Argentina more than 3 million hectares. - The expansion of the agricultural frontier in the upper and middle river basin exceeds one million hectares per year. Source: FAO and Secretary of Agriculture and Livestock Farming of the Nation. Report on Soils in the Plata River Basin and NEA Region. Bs. As. 2001."

The harm to life and property is substantial. It erodes and salinates the soils. It aggravates the sedimentation of navigable channels. It has an impact on the silting of dikes, on irrigation systems, on the potable water supply systems to towns with polluted waters and on the evacuation of urban effluents.

These are the damaging effects of water in the territories subject to various provincial jurisdictions, and it also invades the land of other countries in the region. Therefore there are concurrent and complementary competences between the affected provinces and the nation.

The provinces exercise the competences particular to their territory (Articles 121-124 CN), and the national government acts by virtue of concurrent and complementary powers, in accordance with the constitutional clauses linked to the management of general well-being, health, order, security and national progress (Articles 41, 75 sec. 18, 19 and 32 of the CN; and Law 25,675).

When floods affect bordering countries that are part of the basin, the stipulations set forth in the international treaties in force with Bolivia, Paraguay, Brazil and Uruguay on the upper river basin and middle river basin are put into practice, which are based on international cooperation, prior notice, information and assistance.

On all occasions when these harmful events have occurred, both the provinces and the nation have issued regulations declaring areas of emergency in the territories involved, measures of direct assistance, development measures for recovery and planning of water works. These works are in a constant state of study, planning and execution, due to the extent of the territorial area that they must serve.

Within the national scope, the following inter-jurisdictional entities have been formed, among others:

- Inter-jurisdictional Commission of the river basin of Laguna La Picasa – Buenos Aires, Santa Fé and Córdoba and the national government – for the almost sole purpose of managing the measures aimed at solving the problem of floods and damage related to the northeast zone of the province of Buenos Aires.
- The Inter-jurisdictional River Basin Commission of the “Bajos Submeridionales” Water Region – Chaco and Santa Fé – with the same purposes as the preceding, plus the purposes of erosion and sedimentation.
- The Inter-jurisdictional River Basin Commission of the Matanza-Riachuelo River - Buenos Aires, Ciudad Autónoma de Buenos Aires – which also integrates 11 affected municipalities that make up the basin. It has the difficult mission of coordinating multiple entities that hold competency in the river basin, with a wide variety of applicable laws – national, provincial and municipal – to solve serious pollution problems.

- The Inter-jurisdictional Commission of the Río Colorado (COIRCO). While it has the objective of assuring the distribution of water flows among the member provinces - Mendoza, Neuquén, Río Negro, La Pampa and Buenos Aires – as from the 1990s and due to the oil spills occurring in the upper basin that caused considerable environmental damages, the member provinces and the Federal Council of the Environment agreed to entrust to COIRCO the task of technical-operational control of oil exploration and operation in the area of influence in order to prevent harm to the water quality and environmental elements in the region, in conjunction with the National Bureau of Fuels.

In the international scope, we will cite those that have the greatest responsibility for preventing seasonal natural disasters:

- Bi-national Commission of the Upper Basin of the Río Bermejo and Río Grande de Tarija – Argentina-Bolivia. The commission's functions include drafting a development program and selecting works – prior to the EIA – in order to regulate water flows, thereby reaching levels of physical, chemical and biological quality according to international criteria, and to prevent damage caused by flooding, erosion and sedimentation.
- The Yaciretá Bi-national Entity (EBY), the result of the Yaciretá Treaty – signed between Argentina and Paraguay – directed at hydroelectric use of the Paraná River, maintenance of its navigability, regulation of the flow rates to prevent flooding and prevent extraordinary flood waters in the area of influence through a monitoring system to warn of flood waters.

9. Management of Water Quality and Oil Extraction.

Oil deposits, in accordance with Laws 14,773 and 17,319, belong to the inalienable and indefeasible domain of the national state. Law 24,145 ordered that the oil deposits located in provincial territories be transferred to their domain, in addition to the deposits located in the sea adjacent to provinces' coasts up to 12 miles, measured from the base line. But the deposits located on the Argentinean bed of the Río de la Plata and those beyond 12 nautical mile on the continental shelf up to a distance of 200 miles, measured from the base line, continue to be under the domain of the national state.

This situation was never agreed to by the provinces, which always claimed – before the nation and with suits before the Supreme Court of Justice – the domain of the provincial subsoil and consequently the resources existing in it - SCJN, decisions, 4910; T. 13; 14:166-7, among others.

Wherefore, there currently is "three-party" domain over the oil deposits located in provincial territories: a) sold areas owned by the international companies that acquired them; b) areas granted under

exploration permits or concession by the national state to various national and foreign companies; and c) federalised areas – which in reality are marginal areas – of provincial domain granted in concession[15].

Oil companies use waters of provincial domain – almost always underground – both for the usual tasks at deposits and for "secondary oil extraction" – which consists of injecting water into oil wells that are almost depleted in order to force the remaining petroleum to the surface. Both activities pollute water, the soil and the flora. On certain occasions, the crude oil or "washed oil" is deposited in open basins, and if these break, the oil flows over the ground and reaches natural water channels, thereby contaminating them.

These contaminating activities give rise to the exercise of police power regarding environmental pollution by the provinces in whose territory the deposits are located, in exercise of their own competences (Articles 121-124 CN). Wherefore, they apply fines and require companies to undertake environmental recovery tasks in administrative proceedings. The defence that they put forth is that the nation is the one who authorised the exploration under the domain scheme, and as the conceding and granting authority of the permits, it is the one who has competency to intervene, and they do not recognise the provincial competency. There are several trials in progress for these causes in various provincial courts.

There is also concurrent competency of the nation. Environmental pollution and damage affect the resources existing in the territories of several provinces, they affect inter-provincial waters, and they affect various residents and provinces. The competency of the national authority and of the federal justice system is expanded by application of Law 24,051, on Hazardous Waste; General Environmental Law 25,675; the Water Management Law; Law 25,688; and the provisions set forth in the National Constitution on the competency of the national court in Article 116.

Within the provincial scope, the management of water quality is stipulated in the provincial water laws, in concurrent legislation with the national legislation – by adhesion of the provinces – and in the exercise of the police power regarding public health and fitness.

Linked to the subject of water quality management, and due to its close relationship to it, we should briefly refer to the procedures of Environmental Impact Assessment (EIA). While at the national level there is an integrated and agreed system on the procedure to follow for carrying out impact studies, whenever they might affect water resources there should be another one for water quality. The procedure stipulated by General Environmental Law number 26,575 is incomplete. It is not ideal, and it does not adequately guarantee public participation or the civil, penal and administrative liability of civil servants, technicians or companies taking part in the procedure.

[15] For a complete analysis of the subject, see RAMÍREZ, Mariano (2006), Chapters IV, V and VI.

Within the provincial scope, there is a whole mosaic of EAI procedures. Some are complete and integrated, while others are deficient. There are municipalities that have approved their own impact study procedures. The National Parks Administration has its own regulations.

The legislative technique is mixed for identifying the works, actions or projects that are subject to an EIA. At times, a list is made; others, the criteria are generic. At other times, an EIA is only required for projects of major significance.

Therefore, we propose a projects/works amendment, thereby specifying those that require an EIA and those that don't; what are the water quality parameters; which authority holds competency; the extra-territorial effect of the same; and the environmental subject or component affected by the initiative. All of this would be to prevent the duplicity of processes and procedures and the unnecessary participation of more than one jurisdiction.

10. Management for Water Transfer between River Basins.

In the Argentinean federal system, the river basin concept – understood as we have explained it in this document – can be used as a way to solve the conflicts that arise from the use of inter-provincial rivers and as a delineation of rights and duties between parties, through another instance of administrative decentralisation, without failing to consider other socio-economic factors. From this perspective, the river basin is placed within a regional plan that is closely linked to the territorial organisation, and it would allow emphasising the development of water resources. It becomes an economic space whose management – in the broad sense, not just for water – must correspond to common human, social and economic realities and to geographic and environmental realities. Without cultural continuity, the stated idea is difficult to undertake, regardless of the declarations, documents, rules and treaties that may stipulate it.

The water crisis and the expansion of the so-called "right to water" make the subject of river basin water transfer a current topic. The concept of territorial limit, as an area of administrative management, begins to be subordinate to the territorial organisation, as a space of action for implementing policies of economic/social development – including those inherent in water resources. Therefore, the implementation of water transfers can be useful for moderating water deficits and overcoming a limiting factor of human development. The idea also involves repairing or compensating eventual damages to surplus regions or basins. Impact evaluation studies, the precise determination of deficit volumes and, above all, the causes of the same in the receiving basins will be questions that must be carefully explained.

In Argentina, there are currently only draft projects for eventual transfers. It is not a current subject, but topographical conditions and the existence of unused excess volumes that are being discharged into the ocean make these initiatives viable. There are possibilities for undertaking transfers of the Paraná

River to the Uruguay River; from the Uruguay River to the Esteros del Iberá in the province of Corrientes; from the Río Negro to the Río Colorado in the province of La Pampa; and from the Río Grande to the Atuel River in the province of Mendoza.

In the current state of legislation, if a transfer takes place between rivers that are the exclusive domain of a single province, the competency and management of the transfer is exclusive to that province (Articles 121-124 CN).

If the transfer involves inter-jurisdictional channels, it will require an inter-provincial treaty and the consent of all the provinces involved by virtue of the shared domain over the waters. This treaty requires the approval of the local legislatures, in addition to the knowledge and participation – not approval – of the national government due to the concurrent authorities that it holds by virtue of the constitution and derived legislation (Articles 41, 75 sec. 19 and 32, and Laws 25,675 and 25,688).

If a transfer is carried out with waters from an international river, it would require an international treaty with the country(ies) involved and subsequent approval by the national congress (Article 75, sec. 22 CN).

11. Penal Matters and Water Management

The penal code classifies several crimes that involve water, and the commission of the same initially falls under the competency of the local provincial justice system. Others, due to the subject or location, are the competency of the federal justice system.

The local justice system holds competency over the crime of usurpation of public or private waters (Article 182 CP); over anyone who attempts to commit a criminal act against facilities designated for public water service (Article 191 CP); over anyone who may poison or a dangerously corrupt potable water (Article 200 CP); and over anyone who may damage dikes or works designed for common defence against disasters (Article 188 CP).

The federal penal justice system holds competency in crimes against public security: the crime of sinking or beaching a ship; crimes linked to piracy; those that may cause a shipwreck or the obstruction of transport by water; when the security of a ship or a floating construction is put in jeopardy; smuggling by ship; drug trafficking; crimes that result from application of the hazardous waste law in cases in which the transport or effects of the hazardous waste include more than one jurisdiction (Articles 182-189 CP and Law 2405); and crimes that are committed in ports, on ships under the national flag and in the Argentinean sea – cases of admiralty and maritime jurisdiction (Article 116 CN).

12. Participation by Users in Water Management.

In the national scope, participation by users in water management is not legislated, and therefore this analysis will refer to provincial legislation.

Almost all provinces, in their water laws or codes, consider the participation by users, thereby integrating consortiums that are responsible for management in the secondary and tertiary systems of water distribution for agricultural irrigation. These consortiums are public legal bodies constituted by operation of law, with mandatory participation, and they consist of licensees and holders of permits for using the water of the same canal and, in other cases, of the same zone or area of a sub-basin. The members of the consortium choose their own authorities, administer the income coming from the financial charges that are inherent in the use of the water and that, in certain cases, are collected by the consortiums themselves. Some have jurisdictional authority of an administrative nature in the first degree, and others do not. Small water distribution works are payable by the users, with refund systems. In some provinces, collection is by a state body in charge of administering the water, then the corresponding amount is transferred to the consortiums. In many provinces, the consortiums run a deficit, and the state administration must subsidise or directly pay for part of the expenses. Control of financial management is carried out by assemblies of users, but there is always subsequent control by a superior state administrative body[16].

With the state reform process carried out in the 90s, and following the privatisation trend put forth by national laws 23,696 and 23,697, many provinces chose to strengthen the conferred powers of consortiums, thereby transferring to them the activities that were performed by the state.

The user cooperative system for the urban and rural supply of water for domestic uses is generalised in all provinces. In these cases, the cooperative manages the use of water, the construction of works and the maintenance of the network.

There is an interesting case of management decentralisation will full participation by the users in the Perico Valley of the Province of Jujuy – northwest of Argentina, bordering Chile and Bolivia. There the state administration was replaced, and management was transferred to a cooperative of tobacco producers. Currently, the cooperative manages the distribution of water for agricultural irrigation, it operates two small distribution dikes, the water supply for urban uses and the generation/distribution of electric energy in the area of influence. All administrative, financial and works management is executed by the cooperative with a distinctly business structure.

In wet zones – the case of the provinces of Santa Fé and Entre Ríos – consortiums have been formed for defence against the damaging effects of water – floods, drainage, the construction of defence works – as an adjuvant of state action.

[16] Law 6405, Province of Medoza; Law 4392 and the clauses thereof, Province of San Juan; Law 7017, Province of Salta; and Law 5589, Province of Córdoba.

An evaluation of the user participation system as a whole allows us to affirm that while it is supported in almost all provincial laws, only in some provinces has it had successful development – Mendoza, Salta, Jujuy, Tucumán and Río Negro, to cite the most relevant. Nevertheless, the system is worth continuing.

13. Water Management in Pure and Applied Research. Human Resources Training.

It is fundamental in water resources to research new technologies of use, re-use and recovery. It is likewise fundamental in the field of water and environmental engineering with respect to defence of the damaging effects of water or for water preservation. In all these events, the training of human resources is essential. The application and execution of water policy, of legislation and of new technological innovations referring to water depend on it.

In the national scope, there is a subordinate institutional structure of the central government that has undergone multiple modifications throughout recent decades, which are derived from the changes of government. Currently, it is the National Bureau of Water Resources, as the main body responsible for management, which is subordinate to the Secretariat of Public Works of the Ministry of Federal Planning, Public Investment and Services It holds competency to intervene in the preparation and execution of national water policy and in proposing the regulatory framework for managing water resources, thereby coordinating all other jurisdictions and entities. The Ministry of Defence is responsible for the National Weather Service and the Naval Hydrography Service.

The National Council of Scientific and Technical Research answers to the Ministry of Education, Science and Technology, and it is oversees the following: the National Water Laboratory; the National Water Institute; the Institute of Glaciology; the National Institute of Water Economics, Legislation and Administration; the Development Institute of Arid Zones. These centres are those that fulfil the tasks of research, expansion and human resources training in the national arena.

In turn, the Secretariat of Agriculture, Livestock, Fishing and Food – under the Ministry of Economy and Production – is responsible for monitoring the execution of rehabilitation programs for risk areas and for the recovery of flooded or salinated zones.

The Bureau of Water Resources promoted and coordinated the preparation of the Master Water Policy Guidelines in conjunction with all the provinces, which establishes the guidelines for formulating the Water Policy and the planning, evaluation and preservation of water as actions of the provinces that can’t be delegated.

This task determined that the provincial managers of water management would create the Federal Water Council (COHIFE) in 2002 as an instance of federal dialogue for orienting legislation and

creating organisations and schedules of specific actions, with participation in preparation of the national water policy and in the implementation thereof.

In the provincial scope, there are a wide variety of entities linked to water management, with a high degree of functional superimposition: Ministries, Secretariats and Bureaux of various ministries, in addition to an endless number of directorates. This way of management corresponds to the climate and geographic characteristics reigning in each province, to the supply and demand of water and to various water uses, interests and conflicts.

In the northwest of Argentina – mountainous and arid – agricultural irrigation, defence against alluvial deposits and floods are important. Along the wet coast and in the central region, the problems to be resolved are flooding, purification and the construction of protective works. This environmental reality imposes different modes of water management. In the arid provinces, there are entities engaged almost exclusively in irrigation – the Directorate of Irrigation and Drainage; the Water Department; Water Directorates, etc. In the wet area, the entities of the provincial state are engaged in water works, flood control and hydrological measurements, providing potable water service and, as an offshoot, agricultural irrigation problems.

In both cases, the administrative structure is reflected by entities that are dependent upon the central administration, with greater or lesser degrees of decentralisation and varying degrees of autarky. There are also control entities for the services that are licensed to supply potable water and effluent treatment, both nationally and provincially.

Within this framework, the General Irrigation Department of the Province of Mendoza is notable for its unique characteristics. It is an entity with functional, territorial and financial autarky, but of a constitutional rank. It is the water authority of the province, it approves its own budget, and it collects its own income. It does not depend on the central government and has broad autonomy. Its authorities are appointed by resolution of the senate, and they can only be removed by a jury before the same legislative body (Article 188 and the clauses thereof, Provincial Constitution of Mendoza).

III. Conclusions

1. The Argentinean federal scheme must be interpreted as follows: a) as a delegation of faculties to the provinces of the nation; b) as a reserve of provincial faculties; and c) the delegated faculties and implicit powers must be interpreted restrictively. As a general rule, water management in the broad sense is the exclusive competency of the provinces, with the noted exceptions.
2. Article 41 of the National Constitution and the laws of minimum standards issued as a consequence thereof – by effect of the 1994 Constitution – have expanded the national government's margin of

action, in detriment to the provincial competences. The legal scheme over the sea does not recognise the scope of the provincial domain and the competences thereof. Laws 25,675 and 25,688 suffer from unconstitutionality.

3. The constitutional reform of 1994 did not respect the federal foundations of the governmental scheme, in accordance with historic precedents, and it did not preserve provincial autonomies. All the national legislation mentioned in this document is evidence that Argentinean federalism has no real validity. As Andrés Gil Domínguez affirmed: whenever a constitutional breach becomes automatic and abusive, a society emerges in which anomie leads to authoritarianism.
4. The competency to establish the public or private nature of water is national. But provinces can issue laws stating real rights, thereby individualising the waters that they have or acquire in order to satisfy uses of general interest.
5. Inter-provincial rivers are of the provincial domain. Management of use must be regulated by treaties, and the differences between the provinces derived from the use thereof must be resolved by the National Supreme Court of Justice.
6. The determination of the shoreline on rivers, lakes and the sea is a provincial competency, without prejudice to national concurrence along the maritime coast.
7. There are no waters of national domain, except for: the maritime waters of national sovereignty and the sources or springs that are within the natural protected areas of national domain.
8. Provinces hold sole competency for managing the use of, preservation of and defence against the damaging effects of waters that are located in their territories, including those used in oil industry activities. Quality management is the competency of the province.
9. Regarding hydroelectric uses, the source or fall is a resource that is separate from the land, which is owned by the province wherever it may be located. Therefore, the receipt of a royalty corresponds to the province.
10. National competency and management over waters is an exception. The national jurisdiction extends only to navigation and inter-provincial and international trade; the authorisation of ports; the cases of admiralty and maritime jurisdiction and the generation of hydroelectricity – concurrence with the provinces.

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V. Appendix I. Maps.