



WATER LEGISLATION IN SOUTH AMERICAN COUNTRIES

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WATER LEGISLATION
IN SOUTH AMERICAN COUNTRIES

(Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana,
Guyana, Paraguay, Peru, Uruguay and Venezuela)

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for the
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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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FOREWORD

The present study constitutes a further contribution to the inventory of the experience of countries in water law and administration which FAO has been compiling for several years now.

In its concern to promote agricultural production - an activity calling for water in abundance - the Organization has lent particular attention to the juridical and administrative aspects of the use and conservation of this resource. As long ago as 1950 FAO published a study on water law in the United States of America. This was followed by similar studies on Italy (1953), Moslem countries (1954), South America (1956), Central America, the Caribbean and Mexico (1975), European countries (1975), and African countries (1979). Using a similar approach, it brought out studies, limited to groundwater in Europe (1964), and a Systematic Index of International Water Resources Treaties, Declarations, Acts and Cases by Basin (1978). The United Nations Economic Commissions for Latin America, Asia and the Pacific, and Africa have also followed a similar approach in their studies of most member countries. The United Nations Secretariat has published a series of studies on the use and administration of water and international river basins.

Given the changes that have been taking place in water legislation in recent years, FAO in 1973 brought out a fresh edition of the study on water law in Moslem countries.

It was also decided to bring up to date the study on legislation in South American countries. Since the publication, in 1956, of the study on this subject by the distinguished South American jurist, Guillermo J. Cano, considerable changes have been introduced in the legal and administrative arrangements in those countries.

Accordingly, FAO requested Prof. Mario F. Valls to compile a comprehensive and systematic study of the water laws of the countries of that continent following the method developed in the successive studies made on this subject. The approach takes into account the unity of the hydrological cycle and considers that water management, in its widest connotation (conservation, exploitation, administration), constitutes an integrated whole; it also has the advantage of bearing a close similarity with the methods followed by other international organizations in the studies that they carry out.

The information contained in these pages is taken directly from the legislative texts supplied by the countries concerned and from those on file in the Legislation Branch, FAO.

The conciseness of presentation, it will be appreciated, is imposed by the complexity of the subject matter. The task has entailed consultation of a vast number of enactments, particularly in the case of those states which have a federal constitution, and a more detailed analysis or fuller commentary would have required a voluminous study. A summarizing approach is more conducive to attaining the primary objective, namely to supply information on water law in the countries of South America.

The politician, the jurist, the planner and the administrator need basic, up-to-date information on legislative systems not their own. The study that follows seeks to facilitate acquaintance with these, encourage comparison and thus contribute to progress in water legislation.

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INTRODUCTION

1. In South America water resources are regionally abundant. Some of the rivers there are the longest, and have the highest volumes of flow, in the world. Water quality is good, and noteworthy gradients favour the harnessing of the resource for energy production.
2. On the other hand, the distribution of water over the seasons and in geographical terms is very uneven. There are extensive arid tracts but there are also torrential regime watercourses that wreak havoc in the higher mountain areas. Flooding and erosion result, and recurrent spates place life, property and the works of man in danger.
3. In many instances, little attention has been paid to water location, quality and regime, and the hydrometeorological stations are few and far between. Little, too, is known about groundwater.
4. The size of the main basins and the navigability of the rivers had the result of allowing European civilization and trade to penetrate to the heart of this sub-continent, which paved the way, however, to the tensions that erupted during last century in international conflicts. But in South America there was no building of inland navigation ways such as those connecting up the river systems of North America or Europe. Many a river port now stands idle and public investment in this sector has increased relatively little.
5. Approximately half of the population of South America has piped drinking water supply, though this does not mean that the urban dwellers have been able to receive water in the quantity and of the quality, and the sewerage services, demanded by modern hygiene. Progress in technology and increased capital outlay in the sector in the last few years should make it possible to supply the water needed to remedy any shortcomings in this sense. At the same time, there is a challenge in the problems created by the impact of the major concentrations of population and industry on water resources.
6. In much of South America agricultural production is not possible without irrigation. The limiting factor is not, however, any shortage of water - in overall terms - but the vast human resources required and the slow pace of development.
7. The increasing demand for electricity, stimulated by progressively higher oil prices, makes for the feasibility of hydroelectric schemes. Electric power produced by such means thus becomes the driving force in the development of water resources in South America and an instrument of integration and expansion. The countries have grasped this point and are planning or building dams which are among the largest in the world. However, this is only the beginning of harnessing the hydroelectric potential. The siting of the very large hydroelectric installations in international basins gives rise to diplomatic and political problems, and much effort is spent on seeking solutions for these.
8. The industrial use of water is beginning to compete with that needed for population centres and, in some cases, with agriculture. The main limiting factor however is the impact of industrial use on the environment. This, together with the waste that the population discharges into the water, limits re-use potential.
9. The law has for many years past been heavily protective of mining uses in South America but latterly attempts have been made to circumscribe the deleterious effects of that activity on the environment.

10. Nowadays the tendency is to plan water resource development within the context of basin planning in such a way as to ensure that a whole series of needs can be catered for. At the same time, the uneven benefits offered by the respective purposes and the disparate interests promoting alternative development options lead to an expansion in some uses to the detriment of others and to problems of competition between different geographical areas for a share in the advantages which the national laws and negotiation, as the case may be, seek to solve.

11. In short, the overall availability of water should suffice to satisfy abundantly the present and future needs and future development and welfare of the peoples of South America, even taking population growth into account. Technology and planning are able to solve the problems of uneven distribution in time and place as well as problems of resource deterioration.

12. Prospects such as these have touched off profound interest in the study and development of water law at both national and international levels. Practically every country in the Region has introduced new water laws and water codes in recent years, while those countries which have not are considering doing so. At the international level a number of treaties^{1/} have been concluded on this subject and the views of South American countries are repeatedly made known in the various international forums.

13. Legislation in most of these countries takes its origin in the Ordinances of the Spanish Crown issued for all its possessions in South America taken together. While these enactments emphasize the public interest and the State's decision-making powers, a movement toward codification in the 19th century was responsible for the introduction into many countries of the privatizing tendencies of the Code Civil of France. Taking our stand at the present point in time we can appreciate that the doctrinal influence of Spanish laws introduced in 1866 and 1879, the 1933 Consolidated Text of Italian laws and the diffusion of legislative models as promoted by the international organizations and the meetings of experts in water law^{2/} have expanded the range of options open to the lawmaker. It may seem strange at first sight that this fact did not give rise to major differences in legislation. That the contrary is true is explained by the fact that the problems that lawmaking was called upon to deal with were similar in all the countries concerned.

14. All these circumstances are conducive to an approximation between the laws of the Latin-American countries and those of other countries whose judicial traditions derive from other sources.

15. At first legislation promoted expansion in water use in that it offered the user certainty before the law and a freedom of action by assigning to him prerogatives that were the same or almost the same as those associated with ownership. In order to rationalize the use and the sharing out of water, the authorities might simply regulate individual rights without, however, diminishing them in any way. Anything done by them ultra vires would be overturned by the courts.

16. Again, the means of constituting or exercising these rights were very simple. The law assigned them to the owners of certain landed property or to a given class of users or, again, would allow their exercise over specified phases of the hydrological cycle. And such a system called for only a very simple administrative organization for its application.

^{1/} A list of these will be found in Systematic Index of International Water Resources Treaties, Declarations, Acts and Cases by Basin, Legislative Study No. 15, FAO, Rome, 1978.

^{2/} See Minutes and Proceedings of the International Water Law Association in Annales Juris Aquarum, Vol. I, Buenos Aires, 1968 and ibid., Vol. II, Caracas, 1976; also the proceedings of the meeting on Global Water Law Systems, Radosevich, Giner, Daines, Skogerboe and Vlakov, Valencia, 1975, and published by Colorado State University.

17. The different criteria appealed to for assessing the "value" of the different uses of water over time and geographically led to the passing of special laws for the respective uses or situations and to the laying down of priorities in the water codes and, again, to assigning the administrative management of the various uses and problems to distinct technical bodies, some of which would be centralized, while others would be found at different levels of government.

18. This meant that water rights assigned to individuals committed more of the resource in certain areas than was actually available and that more water was abstracted than was compatible with reasonable resource conservation. Again, basin management conducted from different centres of decision and under legal rules which were formally in conflict with each other resulted in unjustified delays in the implementation of plans, dispersion of the basic information necessary for planning water resources development and, in the last resort, tension between sectors and between regions, all of which stood in the way of an integrated use of water.

19. In order to obviate these negative situations, Governments began to assume wider powers where water was concerned, this circumstance in turn rendering necessary a reform of juridical and administrative systems. The reforming process went forward at a different pace in different countries and at different times but the overall trend converged on similar objectives ^{1/}.

20. Governments have intensified the work of assembling statistical data needed for efficient use and conservation of the resource, and strengthened the relevant administrative departments.

21. They began with planning water resource development sometimes on a region-wide basis, sometimes at basin or part of basin level, although the general rule was to plan in nation-wide terms. In one or two cases boards have been set up for the integrated development of a basin or part thereof but more commonly institutions were created with a research and advisory role thus facilitating their planning.

22. They have extended public ownership to all water resources (Chile, Colombia, Ecuador, Peru).

23. They have limited or abolished altogether the cases where the law had permitted an unrestricted use of water (Chile, Ecuador, Peru).

24. They have restricted the possibilities of constituting rights over water where quantity, quality and availability in excess of needs might be compromised (Colombia, Peru, Venezuela).

25. As a general rule, they have restricted individual rights in order to secure the protection of water and basins.

26. They have taken the initiative in planning, installing and operating hydraulic works, and levied contributions on beneficiaries for these purposes.

27. They have concentrated, or coordinated, the activities of various administrative bodies where water development and conservation are concerned. Thus, Argentina has set up an Under-Secretariat for Water Resources, Colombia an Institute for the Development of Renewable Natural Resources, Ecuador its Water Resource Institute, and Bolivia the National Directorate of Water Resources .

^{1/} Valls, Mario F. "La estructura jurídica y administrativa como instrumento de la política del agua en América Latina", Annales Juris Aгуarum, Vol. II, pp. 226/249, Caracas, Venezuela, 1976.

28. The powers vested under respective constitutions in the central government, together with the latter's greater potential for financing, installing and operating hydraulic works, have provided for coordinating its action with local governments. In Argentina, for example, these powers have been further underpinned by a variety of agreements between the two levels of government and between the provincial governments themselves.

29. On the other hand, the present trend toward assigning law and administration a more comprehensive scope - taking in, say, the region, energy, all natural resources or the environment - is a challenge to the approach discernible in the preceding remarks whereby the hydrological cycle is seen as the direct object of concern. There is a convergence of views in this sense, which is making itself felt at the international level, too.

30. The people in question have made plans for agreements and sought similarities between countries in a desire to arrive at an integrated and harmonious development of international water resources.

31. The countries of South America have made it their aim, through their regional arrangements, to evolve general principles of continent-wide validity geared to the strengthening and the broadening of those proposed in the Declaration of the Seventh Inter-American Conference held at Montevideo in 1933 which did not achieve the status of agreements of general scope.

32. What did emerge from that Conference, rather, were agreements concerning specific water resources, and works or activities likely to have an effect on those resources, and agreements providing for systems of coordination for the surveying and development of the major international basins.

33. The international commissions set up to plan the development of a basin or part thereof elaborated plans which are nowadays to be found in course of implementation. Joint bodies - of two nations together - are building vast hydroelectric and multipurpose schemes in the of the Río de la Plata basin.

34. The process of legislation and administrative change where water is concerned continues in South America. The objectives are broad and complex, since they are expected not only to reconcile the interests of the respective regions and economic and social sectors concerned with water but also to embody a correlation between the decisions that affect this particular resource and those taken at a more general level or, say, to protect the environment, or in matters of international policy or, again, in any other matters such as transport, energy, defence, public health or development.

35. There are grounds for hoping that the legislative reform may gather momentum both as a means of bringing about a reconciliation of divers interests and because once one objective is attained there always emerges another which the legislative structure will have to adapt itself in order to pursue.

36. Only a scrupulously contrived juridical and administrative technique and a prudent application of the principles adopted can ensure that those, perhaps divergent, interests and the plurality of purposes pursued by government action will come together in an integrated and harmonious management of water resources and of the basin where they are to be encountered.

ARGENTINA

I. INTRODUCTION

Argentina occupies the southern extremity of South America. To the West, the Andes Cordillera separates the country from Chile. While the highest contours constitute the water divide, there are several rivers and lakes in Argentine territory which have their outlet in the Pacific Ocean, and others, originating or situated in Chile, which empty into the Atlantic. The rivers Pilcomayo, Paraná, Iguazú, San Antonio, Pepirí Guazú, Uruguay and the Plate mark the country's boundary with Paraguay, Brazil and Uruguay. All the rivers named belong to the Plate catchment basin, into which in any case most of the water traversing Argentina flows.

Precipitation has an irregular distribution with maxima averaging 550 mm/year. Rainfall is heaviest and most regular in the Pampas and in the North East of the country. In the remaining two thirds of the territory the climate is arid or semi-arid.

In the main or trunk sectors of the rivers of the Plate basin, summer drying impedes navigation, while the spates of other seasons cause flooding. In the upper courses of the mountain rivers summer drought reduces to very low level the availability of water and, again, winter spates cause serious damage. Increasing resort to groundwater has led to drawdown at many points, including the coastal areas where saline intrusion places several cities in jeopardy.

Water quality is generally good. In certain areas groundwater has a high concentration of salts and minerals. In the vicinity of population centres, pollution is beginning to create problems.

The land area of Argentina is 2 791 800 km², with a population of 26 million. Some 1 200 000 ha are under irrigation.

The territory which is Argentina to-day was originally colonized by Spain and organized as a Viceroyalty in 1776. Home rule was granted in 1810, and the country declared its independence in 1816, later (1853) to organize as a Federal Republic. Toward the end of the last century structural reforms made for expanded agricultural production. A dense railway network was laid out converging on the port of Buenos Aires and, to a lesser extent, on the river litoral. Population and capital concentrated on the hinterland of these ports, with a concomitant market expansion in exports of raw materials. About the same time irrigation works were installed in the arid and semi-arid regions together with up-to-date systems for potable water supply and the disposal of effluents from the population centres.

From the thirties of this century on, there has been a major expansion in the road network. Hydroelectric schemes have been put in hand. Industrial development, taking place predominantly near the main rivers, has given rise to problems of water quality and its expansion in the direction of the interior also comes up against those of quantitative availability. To meet this latter difficulty many miles of supply conduits have been laid out.

In recent years Argentina has initiated surveys for and the construction of multipurpose hydraulic works as joint undertakings with neighbouring States. Among these schemes may be mentioned the Salto Grande project on the River Uruguay and those at Yacretá and Corpus on the Paraná.

II. LEGISLATION IN FORCE

The federal system of government introduced by the National Constitution assigns jurisdiction and competence in water matters to both the Federal Government and the Governments of the respective self-governing provinces making up the Republic. The principal sources of law, accordingly, are to be classified into national sources, local government sources and interjurisdictional treaties (i.e. between provinces or between the latter and the Federal Government).

A. National sources of legislation

1. The National Constitution, promulgated in 1853, together with the amendments of 1860, 1866, 1898 and 1957. The basic principles embodied here provide the framework for the entire legal system of Argentina. However, it affects water only incidentally, when it affirms the freedom of navigation and brings this activity within the purview of federal jurisdiction (Arts. 11, 12, 26 and 67(9)) and when it empowers the National Congress and the provincial legislatures, without distinction, to promote the construction of ship canals and the exploration of the inland reaches of the country's rivers (Arts. 67 and 107);
2. the Civil Code, promulgated by Act No. 340, of 29.IX.1869, and amended where water is concerned by Act No. 17.711, of 22.IV.1968. The Code brings practically all water under the public domain (Arts. 2340, 2635 and 2637), defines the line of the banks (Art. 2577), determines the juridical effect of modifications to land caused by the natural action of water (Arts. 2572-2586), defines the towpath (Arts. 2639 and 2640), prohibits specified impounding and diversion operations (Arts 2642 and 2646-2653), states the law governing servitudes (Arts. 3002-3107) and assigns to administrative law all matters having to do with the construction of dams on rivers and streams (Art. 2465) 1;
3. the Mining Code. This brings endogenic steam under the same heading as minerals for concession granting purposes (Decree-Law No. 2559/57), allows the use of naturally occurring water for mine working needs (Art. 48), places restrictions on mining operations likely to damage hydraulic installations (Arts. 31-34) and on hydraulic works likely to cause damage to mines (Art. 62) and prescribes rules governing the extraction of mineral-bearing sands from the beds of rivers (Arts. 69, 72 and 79);
4. the Penal Code. This makes it a punishable offence to divert water illegally or, in specified cases, to contaminate water (Arts. 182, 186, 188, 190, 194-196 and 198-201);
5. the Act known as the National Irrigation Act, No. 6546, of 28.IX.1909. This enjoins upon the National Executive to plan and install irrigation works in those provinces which agree to this scheme and in the National Territories;
6. Decree-Law No. 6767, of 24.III.1945 (converted into Act No.13.030). This assigns powers to the National Executive to make rules governing inter-province waters;
7. the Federal Electric Energy Act, No. 15.336, of 15.IX.1960. This contains rules governing hydroelectric schemes coming under national jurisdiction;
8. the Forests Act, No. 13.273, of 30.IX.1948. This contains rules governing forest stands that provide protection for basins (Section 8);
9. Act No. 2797, of 2.IX.1891. This prohibits the dumping of industrial residues and sewage in rivers coming under the jurisdiction of the Republic;
10. Special Act No. 20.481, of 22.VIII.1973. This makes it a punishable offence to cause the contamination of water with hydrocarbons;

11. the Hydrocarbons Act, No. 17.319, of 23.VI.1967. This contains rules governing underwater activities, servitudes and water conservation;
12. Act No. 13.577, as amended by Act No. 20.324, of 27.IV.1973, instituting the National Sanitation Works Company. This prescribes rules governing domestic and town water supply and sewerage provided by this Company in areas under national jurisdiction and that of the provinces that have agreed to the scheme;
13. Act No. 11.709, of 18.IX.1933. This makes it obligatory to install fish ladders in dams on rivers under national jurisdiction;
14. Decrees Nos. 9762/64, 469/73 and 2629/73 instituting a national drinking water supply programme for rural population centres. The programme is implemented in those provinces accepting it;
15. the Navigation Act, No.20.094, of 15.I.1973. This brings under national jurisdiction water and public works serving shipping and inter-jurisdiction transit by waterway.

B. Provincial sources of legislation

The most representative local enactments are the following:

- (i) Province of Buenos Aires
 16. The Rural Code, promulgated by Act No. 7616, of 10.VII.1970. Book III prescribes rules governing the agricultural use of water and the atmosphere;
 17. Act No. 5262, of 14.VIII.1948 - The Irrigation Act (this was repealed in part by the Rural Code);
 18. Act No. 5975, of 20.XI.1958 - The Act to provide for the protection of sources, watercourses and receiving bodies of water.
 19. Act No. 6245, of 3.II.1960, to create the Valle Bonaerense del Río Colorado Development Corporation;
 20. Act No. 6253, of 19.II.1960, relative to the conservation of naturally draining water;
- (ii) Province of Catamarca
 21. Act No. 2577, of 22.V.1973, to approve the Water Code;
- (iii) Province of Córdoba
 22. Act No. 5589, of 21.V.1973, to approve the Water Code;
- (iv) Province of Corrientes
 23. Act No. 3066, of 10.IX.1972, to approve the Water Code;
- (v) Province of Chaco
 24. Act No. 666, of 26.VII.1965. This Act makes it obligatory to report any tapping of groundwater;
- (vi) Province of Chubut
 25. Constitution. Chapter III lays down rulemaking principles where water is concerned;

26. Act No. 1503, of 27.VI.1977, to prescribe measures for the protection of water and the atmosphere;
(vii) Province of Entre Ríos
27. Decree No 4390, of 30.IX.1944, prescribing rules governing water use; (viii) Province of Formosa
28. Constitution. This vests in the Province ownership of waterfalls and cataracts and condominium in respect of interprovincial rivers;
29. Act to approve the Water Code, 25.VIII.1976;
(ix) Province of Jujuy
30. Act No. 1961 to approve the Water Code, 12.X.1950. This was subsequently amended by Acts Nos. 2427, 2459 and 3127;
(x) Province of La Pampa
31. Constitution (prescribes basin-level management in the case of interprovincial water);
32. Act No. 607, to approve the Water Code, 22.X.1974;
(xi) Province of La Rioja
33. Act No. 3336 to approve the Water Code, of April 1977;
(xii) Province of Mendoza
34. Constitution (lays down the foundations for water legislation);
35. Act to prescribe the juridical regime for water in this Province, 20.XI.1884. This Act was subsequently amended by Acts Nos. 2508 and 1920;
36. Act No. 4035, of 6.VIII.1974 (contains the law specific to groundwater);
(xiii) Province of Misiones
37. Constitution (vests ownership of existing sources of energy in the Province);
(xiv) Province of Neuquén
38. Constitution (calls for the enactment of a Water Code, vests in the Province ownership of sources of energy, and declares their concession illegal);
39. Act No. 899 to approve the Water Code, 11.IX.1975;
(xv) Province of Río Negro
40. Constitution (establishes basic principles for water legislation);
41. Act No. 285 of 30.XII.1961 (enacts the juridical regime where public waters are concerned);
(xvi) Province of Salta
42. Act No. 755 to approve the Water Code. 12. XI.1946 (amended by, inter alia, Act No. 4233);

- (xvii) Province of San Juan
43. Act No. 4392 to approve the Water Code, 21.II.1978;
- (xviii) Province of San Luis
44. Decree-Law No. 432, approving the Water Code, 30.IV.1958, ratified by Act No. 2576 to approve the Water Code, 4.VI.1958;
- (xix) Province of Santa Cruz
45. Constitution (calls for encouragement for irrigation, and enjoins upon the municipal authorities to provide drinking water supply services);
- (xx) Province of Santa Fé
46. Act No. 6916 of 2.IV.1973 (prescribes measures for the protection of water from pollution);
47. Rural Code (prescribes rules governing irrevocable permits to abstract water);
48. Act No. 2186 to approve the Water Code, 30.IX.1950; (xxi) Province of Tucumán
49. Act No. 2027, of 7.I.1947, to prescribe rules for the industrial use of water, as amended by Acts Nos. 2116 and 2521;
50. Act No. 3742 to prescribe rules governing water, 23.IX.1971;
- (xxii) National Territories of Tierra del Fuego, Antarctic and the South Atlantic Islands
51. Rural Code of the National Territories, enacted by National Act No. 3088, of 14.VIII.1894 (Articles 214 and 235 prescribe rules governing water);
- (xxiii) City of Buenos Aires
52. Act No. 4198 of 31.VIII.1903 (to enact measures for the control of contamination of the sources of the City's water supply).

C. Interprovincial treaties

The most representative treaties having to do with water are the following:

53. Treaty between the Provinces of Salta and Santiago del Estero concerning the use of water in the Salado-Pasaje-Juramento catchment basin, 12.X.1965;
54. Treaty between Córdoba, Santiago del Estero and Tucumán Provinces concerning the exploitation of the Río Salí-Dulce, 3.VII.1967;
55. Treaty between the Provinces of Catamarca, Jujuy, Santiago del Estero and Tucumán on the one hand and the National Government on the other hand concerning the creation of basin committees, 18.II.1971;
56. Treaty between the Provinces of Jujuy, Chaco, Formosa and Salta for the creation of the Río Bermejo basin committee, 14.IV.1972;

57. Treaty between the Provinces of Buenos Aires, La Pampa, Mendoza, Neuquén and Río Negro, on the one hand, and the National Government on the other hand, to approve the Statutes of the Río Colorado Interjurisdictional Committee, 2.II.1977.

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

In Argentina practically all water is public property. The Civil Code so qualifies all rivers, springs, water flowing in natural channels and any other water that is or may come to be suitable for use in the general interest, together with navigable lakes and the beds thereof, the low water line of rivers and watercourses rising on property other than that on which they cease to retain their identity. Groundwater, too, is public property, though this does not affect the right of the owner of the land to draw it, within limits determined by the interest represented by that water and subject to local by-laws. Endogenic steam is state property but is made over under concession to the first discoverer.

In special cases and subject to restrictions the Civil Code assigns to the owner of the land any water there which is not and will not be suitable for use in the general interest, if that water:

- rises naturally and does not form a channel until it flows out of the property on which it rises (acquired rights of owners of servient land prevail over those of the dominant owner, and must be respected) 1/;
- rises and ceases to exist within one and the same property 2/;
- in the form of rain for as long as it remains on the land on which it falls or otherwise enters 3/.

Since water is deemed to be a public good it belongs to the province where it is found. The Federal Government may, however, exercise jurisdiction over it for certain matters and in respect of specified persons and places.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

The owner of a holding has the right of use and the disposal of water attributed to him by the Civil Code, provided he observes the relevant by-laws.

Entitlement to use public water may be assigned and regulated by the Federal Government in those cases - and they are exceptional - which come within its purview. Most cases fall within the jurisdiction of the local authorities. Accordingly:

(i) The Federal Government issues laws and grants concessions in respect of navigational uses and, pursuant to Act No. 15.336 (Federal Electric Energy Act), or by special Act, may also grant concessions for hydroelectric generation purposes. Again, it may grant concessions, permits and authorizations in places and over matters subject to the jurisdiction of the local authorities where an agreement between these two levels of government so provides. Under agreements of this kind, the Federal Government provides drinking water supply and sewerage services in most towns and villages and grants concessions for irrigation purposes.

1/ C.C., Arts. 2340 and 2637.

2/ Ibid., Art. 2350.

3/ Ibid., Art. 2635.

(ii) Local governments (and the Federal Government in those cases where it prescribes rules for, and administers, sites under its jurisdiction) have introduced distinct water use regulations, the essential characteristics of which may now be noted.

Thus, it is usual to permit use in common for primary domestic needs, for livestock watering and dipping and for fishing - always subject to observance of the by-laws and provided no mechanical means or works are used and due regard is had for the property of others 1/.

Use rights over water or exclusive use may be acquired by permit, by concession and, under the laws of certain provinces, by authorization. One modern water code permits prescriptive acquisition of a right of equal force with that granted under a concession 2/.

B. Water use authorizations, permits or concessions

Permits are granted on a revocable basis for an ad hoc use. Accordingly no compensation is payable upon their withdrawal.

A concession, on the other hand, is granted for a term which will vary accordingly to the intended use - sometimes it is granted in perpetuity. Generally the grant follows upon an application being made by the interested party but the National Irrigation Act and certain provincial codes and special laws provide for automatic concessions in respect of all land situated within an area that the authorities deem to be the zone of influence of the facility 3/. Generally a concession is intuitu rei, notably when irrigation or industry are to benefit. By implication, then, concessions will not be granted as something separate from the landed property to which it applies and may not be transmitted separately from it, though they automatically accompany the property when this is alienated 4/.

The effect of a concession is to grant a simple administrative right to use the water.5/ The grantor bears no liability for any natural diminution in the flow 6/.

A last point to note is that concessions are granted with due regard to the rights of third parties 7/.

V. ORDER OF PRIORITIES

Each province has established its own priorities in the light of local needs. The Federal Government has done likewise within its own sphere of jurisdiction, again following different criteria as dictated by differing circumstances. The salient points governing these priorities may now be noted.

1/ Corrientes, Water Code (Act No. 3066, of 10.IX.1972), Arts. 152 ff.; Córdoba, Water Code (Act No. 5589, of 21.v.1973), Arts. 38-40; Salta, Act No. 755, of 12.XI.1946, Water Code, Arts. 73-79.

2/ Corrientes, Water Code, Arts. 40-47.

3/ Act No. 6546, Section 7; Córdoba, Water Code, Arts. 30-33; Jujuy, Act No. 3127, of 24.VI.1974, Section 13; Río Negro, Act No. 285, of 30.XII.1961, Section 42.

4/ Córdoba, Water Code, 1973, Art. 66.

5/ Jujuy, Water Code, Act 1961, of 12.X.1950, Section 12; Santiago del Estero, Water Code, Act No. 2186, of 30.IX.1950, Section 33.

6/ Corrientes, Water Code, Art. 36, Jujuy, Water Code, Art. 13.

7/ Corrientes, Water Code, Art. 35; Jujuy, Water Code, Art. 13.

A. Among different uses

As a general rule priority is accorded to domestic needs and, after these, to the needs of the railway services or (also) of irrigation. Sometimes industrial needs prevail.

Third or fourth place is usually assigned to hydroelectric power generation, and the last place to water storage facilities, impounding features and fish hatcheries.

Whereas water legislation makes little reference to shipping uses as such, the freedom of navigation proclaimed by the National Constitution and embodied in certain treaties creates a general priority for this use over other uses. The Civil Code, moreover, prohibits uses which conflict with transport by water 1/.

B. Among different existing rights

The with-due-regard-to-third-parties clause stipulated in concessions and attaching to water rights in general creates a prior entitlement to the person first constituting his right 2/.

Again, permanent concessions have preferential claim over ad hoc concessions, entitlements under the latter receiving recognition only after the rights under the former have been satisfied.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

The water codes of the provinces include under "common use" the drawing of water for drinking purposes and, by means of hand-held receptacles, for domestic needs 3/. One province authorizes any wayfarer access to privately owned water in order to quench his thirst 4/.

B. Municipal uses

The National Act No 20.324 (see list of sources in Section II, entry No. 12) specifically regulates municipal uses in areas served by the State company Obras Sanitarias de la Nación (National Sanitation Systems Board) on the following criteria:

- (i) The Act applies only in places under the original jurisdiction of the national government and in those voluntarily brought under that jurisdiction;
- (ii) the Board makes the rules governing these services in the places referred to;
- (iii) the Board is required to provide drinking water supply and sewerage services for any inhabited property, livestock housing or non-food industry;
- (iv) the inhabitants served are under the reciprocal obligation of installing and making use of the services and of installing domiciliary fitments and connecting these up with the mains;

1/ National Constitution, Art. 26, and C.C., Art. 2641.

2/ Jujuy, Water Code, Art. 13; Salta, Water Code, Art. 17; Santiago del Estero, Water Code, Art. 30.

3/ Catamarca, Water Act, of 22.V.1973, Sections 90 ff.; Corrientes, Water Code, Arts. 152-154.

4/ Corrientes, Water Code, Art. 187.

- (v) the Board has powers to demand the removal of any installation on the ground or under the ground that obstructs the installation and use of its facilities;
- (vi) owners of immovable property situate in the aforesaid areas are required to pay rates even if they do not make use of the service and even if the land in question is lying idle. By way of enforcing this requirement any sales, mortgages and transmissions to heirs affecting the property in question may be registered only if all rates have first been paid;
- (vii) the Board enjoys complete exemption from any tax or rate irrespective of whether these are imposed at the national, the provincial or the municipal level;
- (viii) the Board may take any and all measures, such as fencing off, in order to secure the sound condition of watercourses supplying the population or to prevent pollution of the water by industry.

The water codes of the provinces prescribe rules governing State-provided services and the granting of concessions for water supply and sewage disposal for population centres, determine the volume of water assigned to these uses (since it invariably enjoys priority over other uses), and require users to contribute to the provision of facilities and of the services 1/.

C. Agricultural uses

The Act known as the National Irrigation Act empowers the National Executive to provide works in the national territories and in any of the provinces agreeing to such intervention. Accordingly, the Executive issues regulations governing water distribution 2/, and exercises ownership rights and jurisdiction over installations until the capital laid out for their construction together with the expenses incidentally incurred has been recovered, either by means of collection or of requiring the province to pay directly 3/. The rate must cover costs of maintenance and operation of the respective installations, and is set at a level commensurate with the benefits accruing to the user 4/.

In addition, all owners in the area served by these installations are required to pay an irrigation rate or make over the land to the State at the price obtaining before the services were provided 5/.

One rural code has specific regulations governing the use of water for irrigation, such use proceeding under a revocable permit or a concession. The unit for calculating a concession is the hectare-cum-irrigation right. The State is exonerated from responsibility for any drying up or diminution of the source concerned. Concessions are granted under public deed and in perpetuity; they accompany indissolubly the land in question, though in certain cases they may be transferred to other land held by the concession holder. They may be withdrawn against compensation or upon forfeiture for non-observance of specific obligations, and entail payment by all owners within an area suitable for receiving irrigation of a contribution toward defraying costs of administering the service 6/.

1/ Catamarca, Water Code, Arts. 26 ff.; Corrientes, Water Code, Arts. 22 ff., Santiago del Estero, Water Code, Arts. 56 ff.

2/ National Irrigation Act No. 6546, Section 16.

3/ Ibid., Section 11.

4/ Ibid., Section 10.

5/ Ibid., Section 7.

6/ Buenos Aires, Act No. 7616, of 10.VII.1970.

One particular water code prescribes rules governing concessions for irrigation purposes, these being granted in perpetuity, following a public hearing. The concession in these cases is associated indissolubly with the land, and may be withdrawn only against compensation. Under its terms a water rate is payable as means of providing for the upkeep of the service 1/. Another water code prescribes rules governing concessions for agricultural purposes, these being granted in terms of unit areas and of a rate for beneficial use.

In the cases of permits the authorities are required to determine the site and characteristics of the offtake while users are to defray the cost of upkeep of offtakes and ditches 2/.

D. Fishing

The Civil Code permits fishing without restriction in waters given over to public use, subject to the observance of by-laws 3/. Act No 11.709 prescribes the provision of fish ladders in connection with dams built by the State.

Certain provincial water codes have rules governing water concessions for the establishment of fish hatcheries 4/ and for fishing as a "common use" of water 5/.

E. Hydropower

The National Act No. 15.336 places under national jurisdiction hydroelectric schemes feeding grids deemed under its terms to be national. It empowers the National Executive to grant concessions within its field of competence for a term of up to 60 years. It assigns priority to domestic drinking and irrigation uses. The deed of concession prescribes the use and the time limit within which the relevant works must be carried out; and it also prescribes royalties and, again, detailed conditions and grounds of forfeiture upon non-compliance by the concession holder. It further authorizes the latter to occupy land belonging to third parties with the relevant works or dams. It may be transferred only by agreement of the holder. Several provincial constitutions prohibit the granting of concessions for electricity generation purposes, and provincial water laws prescribe rules for such concessions, which will be granted in terms of a given nominal horsepower rating and for an indefinite term 6/.

F. Industrial and mining uses

There is no specific legislation on these uses. However, the Industry Promotion Act excludes from its benefits those industrial undertakings which are likely to cause undue damage to the environment.

The Mining Code, which has been the governing text nationwide since 1887, authorizes the mine concession holder to use naturally occurring water for the needs of his enterprise 7/ and allows him to claim way leave for water supply and drainage 8/.

Both national and provincial laws prescribe rules governing the extraction of materials from the beds of rivers and the watercourses 9/.

1/ Catamarca, Act No. 2577, of 22.V.1973, Sections 30-65.

2/ Córdoba, Act., Sections 111-121.

3/ C.C., Arts. 2548 and 2549.

4/ Santiago del Estero, Water Code, Arts. 110 ff.

5/ Santiago del Estero, Ibid.; Rural Code, Title VI. Chapter III.

6/ Córdoba, Water Code, Art. 128; Salta, Water Code, Art. 66.

7/ Mining Code, Art. 48.

8/ Ibid., Arts. 51 and 210.

9/ Decree No. 11282/58 (National).

Provincial water laws and codes make express provision for this type of concession, some granting one for an indefinite term, others for a fixed term, and, in general, allow the disposal of residues in drainage water, provided third parties are not thereby aggrieved.

G. Transport

Jurisdiction for regulating navigational uses vests in the National Government, which constantly exercises its powers in this behalf 1/.

Some provincial water codes provide for concessions in respect of navigable canals and, also, for railway purposes.

H. Medicinal and thermal uses

The various water codes usually contain rules governing "mineral water" 2/. One such code defines mineral water as "that which has therapeutic properties" 3/, while another refers to water having "therapeutic or curative properties" 4/. These codes place this use under the control of the water authority or, in some cases, under that of the public health authorities.

I. Recreational uses

Certain codes contemplate temporary use as ponds or swimming pools; and by-laws have been issued in respect of specific impounding structures and beaches with recreational ends in view 5/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection

The Civil Code forbids the owner of any property to divert water in such a way that it floods or otherwise causes damage to another's land, and provides for help to be afforded him in order to install protection works, and to repair these when destroyed, as a means of ensuring that the water may be restored to its former use 6/. The Forests Act No. 13.273 creates an obligation to conserve wooded stands offering protection to watercourses. The provinces making up Argentina have brought themselves within the purview of this Act 8/.

B. Soil erosion and siltation

Under the Civil Code owners of landed property are forbidden to do any act in connection with water that will result in damage to the property of others 9/. Some provincial laws regarding soils prohibit any practice likely to give rise to water erosion 10/, while certain water codes empower the authorities to prescribe

1/ Act No. 20.094, of 15.I.1973, Sections 8-15.

2/ Catamarca, Water Code, Arts. 204-207 and Corrientes, Water Code, Arts. 175-178; Salta, Water Code, Arts. 253-255.

3/ Jujuy, Water Code, Arts. 259-269.

4/ Córdoba, Water Code, Art. 136.

5/ Salta, Water Code, Arts. 60 ff.; Córdoba, Water Code, Arts. 126 ff.

6/ Mendoza, Decree No. 249, of 31.I.1974.

7/ C.C., Arts. 2642-2644.

8/ Forests Act No. 13.273, Section 8.

9/ C.C., Arts. 2633-2635 and 2647-2653.

10/ Catamarca, Act No. 2480, of 31.VII.1972; San Luis, Act No. 3740, of 24.X.1972; Santa Cruz, Act No. 229, of 16.I.1961; Santa Fé, Act No. 4871, of 20.XI.1958.

basin protection plans embodying various prohibitions and even enjoining measures to make good any damage done 1/.

C. Drainage and sewerage

No owner may cause to flow over a neighbouring property any effluents from his dwelling or from factory processes; nor may he make use of spring water that he causes to flow over servient holdings if such use were to have a deleterious effect on the latter 2/.

Where the drying out of waterlogged or potentially waterlogged or swampy land is concerned, the provinces differ in the criteria that they adopt. One, relatively arid, province leaves the initiative to the local authorities 3/, another, with a large surface area occupied by water, authorizes owners of the major portion of the potentially recuperable land to demand of the remaining owners that they pay for the works or leave their land 4/.

Other provinces, again, levy special contributions for the construction, financing and maintenance of works needed for the prevention of waterlogging and salination 5/.

The Water Code of Córdoba province specifically prohibits uses leading to salination of one's own or another's land 6/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

A. Waste and misuse of water

Among the provisions designed to prevent the squandering or other improper use of water may be mentioned:

- (i) the obligation imposed by some laws on owners of land which surveys indicate as being the most appropriate for obtaining water from a given offtake. This obligation may consist in making use of the service in question or contributing to its provision and maintenance 7/;
- (ii) the prohibition on using water for a purpose other than that for which the relevant concession has been granted, or in excess of, or to a greater extent than, that provided for in the grant 8/;
- (iii) the obligation to meter the water one uses 9/;
- (iv) the priority accorded to certain uses as opposed to others, or the limiting of the water allocation to the area under irrigation 10/;
- (v) the prohibition on granting concessions when piping losses are very heavy.

1/ Catamarca, Water Code, Art. 208.

2/ C.C., Arts. 2632, 2648 and 2638.

3/ Córdoba, Water Code, Arts. 197-202.

4/ Corrientes, Water Code, Arts. 101-202.

5/ Jujuy, Water Code, Arts. 132-148; Río Negro, Water Act No. 285, Sections 51 ff.

6/ Córdoba, Water Code, Arts. 199 ff.

7/ National Act No.6546, Section 7; Córdoba, Water Code, Arts. 30-33; Jujuy, Act No. 3127, Section 13.

8/ Corrientes, Water Code, Arts. 10 and 36; San Luis, Water Code, Art. 19.

9/ Act No. 13.577, Section 76, inserted by Act No. 20.324, of 27.IV.1973.

10/ Jujuy, Water Code, Art. 51; Salta, Arts. 47-49.

B. Recycling and re-use of water

Certain water codes make it obligatory to return water that is surplus to needs to the source 1/, while others provide for temporary ad hoc concessions for the use of runoff 2/. The rules described under subsection D - Pollution, are also designed to facilitate the re-use of water.

C. Health protection

Services have been provided under legislation at the national and provincial levels for drinking water supply and effluent disposal (see Section VI, A and B), and usually the various water codes also make it mandatory to co-operate with the public health authorities in preventing the propagation of water-transmissible endemic, infectious and contagious diseases 3/.

D. Pollution

The national legislation prohibits the dumping of industrial waste, unless this has first been treated 4/, as well as any pollution of navigable water courses 5/.

The provinces lay down similar prohibitions either in their respective water codes or by special enactment 6/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

A. The licensing of drillers

Certain provinces require firms drilling for groundwater to register with the authorities. 7/.

B. Exploration and exploitation licences

The Civil Code, which applies throughout the Republic, assigns to the owner of any land the right to use underlying groundwater (which is public property) to the extent of his needs 8/. The Code also makes it lawful to lead across another's land any water appearing at the surface by natural means 9/. Water raised by artificial means may be so led by constituting a servitude of aqueduct 10/. Accordingly, the local laws will prescribe rules governing the exercise of these rights contemplated in the Civil Code, and make disposition of the groundwater that is not required by the owner of the land, and water underlying government land. Here the various laws follow differing criteria. One code introduced prior to the provisions described not only assigns to the finder the water that he taps on another's land but enables him to oblige that other to sell the

1/ Jujuy, Water Code, Art. 160; San Luis, Water Code, Art. 124.

2/ Salta, Water Code, Arts. 192 ff.; Mendoza, Resolution No. 189 of the Administrative Tribunal.

3/ San Luis, Water Code, Art. 159.

4/ Act No. 2797, of 3.IX.1891.

5/ Decree No. 15.422, of 12.XII.1960, revising the former Martime and Fluvial Digest.

6/ Córdoba, Water Code, Arts. 183 ff.; Corrientes, Water Code, Art. 8.

7/ Mendoza, General Water Act, of 16.XII.1884, Sections 131 and 134; Salta, Water Code, Arts. 244 and 245; Buenos Aires, Act No. 5965, of 20.XI.1958, Tucumán, Acts No. 1238 of 1915 and No. 2027 of 7.I.1947. 34 C.C., Art. 2340(3), inserted by Act No.17.711, of 22.VI.1968.

9/ Ibid., Art. 2647.

10/ Ibid., Arts. 2632 and 3082 ff.

land that can be irrigated with the water in question 1/. One more recent code, on the other hand, limits the right of the owner to the land to such water as he applies exclusively to his domestic needs and is able to tap by hand digging, i.e. excluding the use of applied power.

In certain provinces it is sufficient to notify the authorities prior to drilling for or tapping water 2/, while in others a permit is required for the former operation 3/. In others, again, a permit is needed to drill, and a concession in order to draw the water 4/.

C. Groundwater resources protection measures

The National Sanitation Systems Board Act prescribes a protection zone for springs feeding the drinking water supply operated by this Board 5/. Local codes, too, empower the authorities to declare such protection areas around wells, to place limitations on withdrawals, to require the waterproofing or tubing of wells, to prohibit practices likely to lead to impairment of the water table or a waste of the resource and, in general, to impose measures necessary for preserving the quality of the water and preventing exhaustion of the supply 6/.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

A. Waterworks construction

Public works carried out for the convenience or utility of the community constitute publicly owned assets. The construction of barrages on rivers and streams is accordingly governed by administrative law 7/.

No general legislation has been introduced governing hydraulic installations, though there are provisions specific to a number of national major schemes and to those operated jointly with another country.

The decentralized enterprises and services of the Federal Government build protection, irrigation and port facilities and those for drinking water supply together with further schemes in localities and in cases coming within federal jurisdiction. They also do so in provincial territories under delegation from the local authorities. The Federal Government provides direct control and protection over facilities coming within its jurisdiction, even where these are located in provincial territory. The provinces prescribe rules for and exercise control over all other hydraulic installations and determine which shall be built by them and which by the intended users 8/.

B. Waterworks operation and maintenance

The Federal Government and the provincial governments provide through the agency of their own enterprises and services for the operation and maintenance of the main installations.

1/ Jujuy, Water Code, Arts. 249 and 250.

2/ Córdoba, Water Code, Art. 161; San Luis, Water Code, Art. 174; Salta, Water Code, Art. 251.

3/ Catamarca, Water Act, Sections 188 ff.

4/ Jujuy, Water Code, Arts. 223 ff.; Mendoza, Act No.4035, of 6.VIII.1974, Sections 9 ff.

5/ Act No. 20.324, Sections 29-34.

6/ Jujuy, Water Code, Arts. 228 and 255.

7/ Water Code, Arts. 2340 (7), and 2645.

8/ Córdoba, Water Code, Arts. 206 ff.; Jujuy, Water Code, Arts. 123-180, 216 (end) and 218.

Concession and permit holders and users in general are responsible for the repair and cleaning of these installations which provide them with a means of exercising their rights V.

Whilst the assigning of responsibility usually finds expression in the payment of a contribution to defraying costs, some provinces make it obligatory upon users' associations or upon the users individually to see to the upkeep of these installations.

C. Waterworks protection measures

The water codes prohibit the placing in conduits of any obstacle to the free flow of the water 2/ and authorize owners across whose land drainage ditches pass to repair these whenever dangerous obstructions occur and it is urgent to remove these 3/.

The Mining Code prohibits the pursuit of mining work in places where waterworks might suffer damage 4/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

Owners of land bordering on a river or canal serving for communication by waterway are required to refrain from erecting installations (and repair those already in place) and from causing any impairment to the land within a 35 m-wide strip adjacent to the bank. Municipal authorities may reduce the width requirement to 15 m in built-up areas 5/.

The Mining Code prohibits the undertaking of mining works within specified distances of rivers, conduits, canals and watering points unless the permission of the owner or of the authorities, as appropriate, has first been obtained 6/.

One provincial water code empowers the authorities to declare protection zones for basins, springs and other water resources or deposits, where any grazing, tree-felling and alteration of the plant cover are prohibited. The same Code requires in addition that compensation be paid for any loss or damage arising out of these prohibitions 7/ or, again, empowers the authorities to declare flood zones with the implication that only by its agreement may thus be erected there any constructions likely to prove an obstacle to the free flow of the water 8/. Another province prohibits house building in areas liable to flooding 9/.

A special Act of another province amending its Water Code empowers the authorities there to reorganize any specified area, basin or valley with a view to achieving a more efficient use of the resource, and to declare protected zones for the purpose of limiting, imposing conditions on, or prohibiting any activity there that is likely to have an adverse effect on the water 10/.

1/ Corrientes, Water Code, Arts. 130 and 141.

2/ Jujuy, Water Code, Art. 156; Salta, Water Code, Art. 203.

3/ Jujuy, Ibid., Art. 149.

4/ Mining Code, Arts. 31(4), 32 and 34.

5/ C.C., Arts. 2639 and 2640.

6/ Mining Code, Arts. 31(4), 32 and 34.

7/ Córdoba, Water Code, Art.192.

8/ Ibid., Art. 194.

9/ Buenos Aires, Act No. 8912, of 24.X.1977.

10/ Jujuy, Act No. 3127, Section 2.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The ministries and the various bodies reporting to them have the following terms of reference where water is concerned:

- Ministry of Economic Affairs: to assist the President of the Republic in all matters having to do with the implementation of national water policy and with the regime of integrated use of water resources; the development and follow-up of economic and financial plans and those for public works and services within overall planning, and with coordinating national and provincial plans;
- Secretariat of State for Transport and Public Works: to assist the Minister for Economic Affairs in the performance of his responsibilities in water matters;
- Undersecretariat for Water Resources: to assist the Secretariat of State for Transport and Public Works in the formulation, implementation and official control of policy in respect of the surveying, use, conservation and administration of water resources; to establish and direct a national water resources coordination system; to promote, implement, coordinate and supervise observations, research and other studies for the surveying, use and conservation of water and the control of its harmful effects; and to operate the national water register and cadastre;
- National Advisory Council: to advise the Undersecretariat for Water Resources concerning surveys, plans, programmes and projects for works, legislation and action with a view to harmonizing and coordinating the activities of the public sector where water is concerned;
- National Institute for Water Science and Technology: to conduct surveys and research on water, to disseminate the findings thereof and to provide staff training;
- Regional Groundwater Centre: to survey and conduct research on groundwater in the area of its jurisdiction;
- Basin Committees: see Section B (ii), below;
- Undersecretariat for Merchant Marine: to assist the Secretariat of State for Maritime Affairs in its responsibilities regarding navigable waterways and port installations;
- National Directorate of Port Installations and Navigable Waterways: to construct port works, navigable waterways, underriver tunnels and protection works for navigable waters; to assemble and process information and conduct surveys and research geared to the accomplishment of its mandate;
- Secretariat of State for Energy: to assist the Minister for Economic Affairs in all matters having to do with the harnessing of sources of energy and of water resources and with the efficient and coordinated use of all sources of energy;
- Secretariat of State for Maritime Affairs: to advise the Minister for Economic Affairs on all matters having to do with maritime interests, in particular as regards achieving an optimum operational level in the case of navigable waterways and the upkeep of port installations adequate to satisfying the demands of national development and security;

- National Commission for the Basin of La Plata: see under XII,B (ii), below;
- National Hydrographic Service: to provide the public safety-at-sea services, to carry out and update surveys, soundings and research on the hydrogeography of the Río de la Plata and in the lower reaches of other navigable rivers;
- National Meteorology Service: to set up and operate weather stations, to conduct surveys and research and statistical operations; and to act as a clearing house for the reception, processing and dissemination of meteorological intelligence.

B. At the intermediate level

(i) At the inter-state, inter-regional or inter-provincial level

The respective basin committees are typically interjurisdictional bodies. The following information in their regard is pertinent:

1. The first such Committees were appointed in the area declared under the San Salvador de Jujuy agreement of 18 February 1971, between the former Secretariat of State for National Water Resources and the provinces of the Northwest Region 1/. Subsequent to this, other Committees were set up on a similar basis for other regions and sub-basins;
2. these Committees for the provinces of the Northwest are appointed pursuant to a resolution issued by the appropriate Secretariat of State following consultation with the provinces concerned 2/;
3. several decisions of a certain importance may be taken only by the Secretariat of State in consultation with the provinces represented on the Committee. Among such decisions may be singled out those concerning the territorial jurisdiction of the respective Committee, its seat, and the allocation to it of funds 3/;
4. their powers and duties are: to propose rules for coordinating the action of national, provincial and interprovincial bodies where water is concerned, to advise and provide information to any Secretariat of State so requesting, to follow up the assembling and processing of meteorological, hydrological, hydrographic and hydrometeorological data, to promote surveys and research for evaluating water resource use, to make recommendations and to develop the plans of work for the respective committees. They administer their own funds and determine their own rules of procedure 4/;
5. their composition is: a Chairman, nominated by the Secretary of State responsible for water matters, together with representatives appointed by the respective governments of each of the provinces concerned 5/;
6. their only essential component in effect is the Chairman, who is their representative. They may set up an advisory committee 6/, and subcommittees for each sub-basin or for the respective reaches of any main river 7/;

1/ Ratified by the following instruments: Catamarca (Act No.2429); Córdoba (Act No.5335); Chaco (Act No.1130), Jujuy (Act No.2830 and Act No. 2870), La Rioja (Act No.3362). Salta (Act No.4444), Santiago del Estero (Act No.3700 and Tucumán (Act No.3769), National Government (Decree No.4362, of 28.IX.1971 and Act No. 20.292).

2/ Agreement, Art.1.

3/ Ibid., Art. 12.

4/ Ibid., Art. 3.

5/ Ibid., Art. 4.

6/ Ibid., Art. 5.

7/ Ibid., Art. 6.

7. their financial resources are the funds allocated to them by the Secretariat of State, moneys from the budgets of the provinces having an interest in the basin, and contributions from other public bodies 1/.

Among these committees should be mentioned those for the sub-basin of a tributary of the river Paraná-Plata and for several basins which have no outlet to the sea.

Under the agreement signed at Resistencia on 14 April 1972, the Bermejo Basin Committee was set up on similar lines to those described 2/.

The National Government and the government of the province of Santa Fé have appointed a Committee for the minor basins in the Gran Rosario system 3/. With the government of the province of Santa Cruz it also set up such a Committee for the river of that name 4/.

(ii) At the provincial level

Each province has its own water administration which in some cases ranks as an undersecretariat. Thus, the province of Mendoza has an Irrigation Department, which is responsible for all matters having to do with irrigation, drainage, public waters and groundwater, private rights alone being removed from its jurisdiction. Making up this Department are a General Superintendent and five counsellors who are appointed by the Governor of the province by agreement with the Senate, and may not be removed from office save following indictment. The Department has rule-making powers and administers the law falling within its purview, and collects from users of public waters a contribution for its own maintenance, and develops water management works generally and provides for their upkeep.

The Superintendent administers the Department and, together with the five counsellors mentioned, forms the Administrative Tribunal which appoints the staff of the Department, and removes these from office, approves the budget, and confirms (or the reverse) the elections of the various water management bodies as well as approving the budgets of the various users' associations or "inspecciones de cauces" (channel inspectorates), as they are called. Every river has its own administrative authority headed by a subdelegate of the aforementioned Superintendent, while canals led off from any river are administered by the respective users, who for this purpose elect their representatives on these "inspecciones".

In the 1960s, a number of provinces set up special multi-purpose bodies for the integrated development of resources in parts of river basins on their respective territories, delegating to these a certain degree of authority. The names of some of these bodies may be mentioned:

- Buenos Aires: La Corporación de Fomento del Valle Bonaerense del Río Colorado (responsible for the development of both banks of the river of that name) 5/;
- Chubut: Corporación de Fomento del Valle Inferior del Río Chubut (set up for the integrated development of that part of the basin lying within the province. It later extended its jurisdiction to the rest of the province) 6/;
- La Pampa: Comisión Provincial del Río Colorado (set up for the integrated development of that part of the basin lying within the province. It has

1/ Agreement, Art. 8.

2/ Ratified by the following Acts No. 20.088; Chaco No. 1130; Formosa No. 550, Jujuy No.2874 and Salta No.4515.

3/ Agreement of 29.IX.1972.

4/ Agreement of 14.IX.1976.

5/ Act No. 6245, of 3. II. 1960.

6/ Decree-Law No. 380, of 1963 and Act No. 1276, of 21.VI.1975.

changed its organizational structure and name several times since being instituted, and is now known as the Administración Provincial del Río Colorado) 1/;

- Río Negro: Instituto de Desarrollo del Valle Inferior del Río Negro (whose purpose is to implement development projects on the right bank portion of the lower valley) 2/;
- Santiago del Estero: Corporación del Río Dulce (set up to develop a portion of this river basin) 3/.

(iii) At the basin or sub-basin level

The committees referred to under (i) also function as basin or sub-basin authorities.

C. At the local level

(i) Local water rights institutions and administration

The municipal by-laws assign to these institutions jurisdiction in matters affecting hygiene and health, which include the supply of drinking water, the removal of nightsoil, and environmental sanitation.

(ii) Water users' associations

For the National Territories (one in number only at the present time) the Rural Code in their regard contemplates the election of water magistrates by the users 4/, but this provision has remained a dead letter so far.

The constitutions of Chubut and Mendoza provinces 5/ and certain water codes provide that irrigation users shall elect their governing bodies and administer their revenue 6/.

D. At the international level

(i) International treaty provisions

Within the American Regional System, the Seventh Inter-American Conference (Montevideo, 1933) declared that the consent of the riparian States was required in order to make use of the water of international rivers, and proposed that disputes arising in these matters be settled within the Pan American Union - now the Organization of American States. It recommended the adoption of the following principles where agricultural and industrial uses are concerned:

- exclusive national uses are contemplated only in the respective riparian territories 7/;
- such uses require the consent of another State whose banks suffer any loss or damage as a result 8/;

1/ Decree-Law No. 511, of 1960.

2/ Act No. 200, of 4.VIII.1961.

3/ Act No.482 of 1968.

4/ Rural Code for the National Territories, Arts. 220 ff.

5/ Constitutions of Chubut, Arts. 80, 83 and 84; Mendoza, Arts. 187 ff.

6/ Catamarca, Water Act, Sections 107 ff.; Salta, Water Code, Arts. 139 ff.

7/ Declaration of Montevideo, Art. 2.

8/ Ibid., Arts. 2 and 3.

- uses may not cause prejudice to the rights reciprocally enjoyed by other States; waterworks must not cause hindrance to shipping;
- States are required to give advance notice of any works that they propose to carry out and in the event of contestation by another State, to refer to conciliation or arbitration procedures 1/;
- every State is expected to permit other States to carry out surveys on its territory 2/.

The Fourth Meeting of Foreign Ministers of the States of the Basin of La Plata, held at Asunción on 30 April 1971, declared (Resolution 25) that:

- the consent of the riparian States must be obtained for the use of the waters of contiguous international rivers;
- successive international rivers may be used by each State in accordance with its needs, provided that other States of the basin are not adversely affected thereby to any appreciable degree;

Bilateral arrangements have been entered into with Chile (Santiago, 26 June 1971), Uruguay (signed on 9 July 1971) and Bolivia (Buenos Aires, 12 July 1971) to apply principles similar to those described above to their shared river basins, with the further obligation being assumed to the effect that the partners were to exchange information on projected works, on their planning intentions and on other matters in such a way as to permit an appreciation of the likely impact on the situation in the other States.

Argentina has made the following treaties with Uruguay:

- Treaty of the Río de la Plata and its Maritime Frontage (Montevideo, 19.XI.1973). This enacts the Statutes of that river and appoints a Joint Technical Committee, and
- Treaty , signed on 26 February 1975, establishing the Statute of the Río Uruguay and appointing the Administrative Committee in its regard.

(ii) International basin or river commissions or boards

The regional system of the Río de la Plata was brought into being at successive meetings of the ministers for foreign affairs of the interested States (Argentina, Bolivia, Brazil, Paraguay and Uruguay). At the first of these meetings (Buenos Aires, 24 April 1967), a basin-level coordinating system was brought into being. This operates broadly as follows:

1. Specialized national organizations concentrate on the problems of the respective countries and assessing their relevance to the basin as a whole;
2. an Intergovernmental Coordinating Committee (this consisted at first of ambassadors, extraordinary or plenipotentiary, accredited to the Argentine Government; subsequently other representatives were admitted - and the official of analogous rank appointed by the Argentine Foreign Ministry) acts as a clearing house for information and coordinates joint action. Decisions require a unanimous vote.

At its second meeting, 18-20 May 1968, at Santa Cruz de la Sierra (Bolivia), the States represented there approved the statutes of this Committee, assigned it a leading

1/ Declaration of Montevideo, Arts. 7-10.

2/ Ibid., Art. 1.

role in this subject-matter field and set up international joint technical committees to study specific subjects.

At its third meeting, 23-25 April 1969, at Brasilia, the Treaty of the Basin of La Plata institutionalized the entire system.

Five years later, at the sixth meeting of the Committee, the Fondo Financiero para la Cuenca de la Plata was created.

As regards the Uruguay and La Plata rivers, joint administration has been placed in the hands of the joint committees appointed by Argentina and Uruguay (these were referred to in (i) above).

An Argentina-Uruguay Joint Technical Committee, whose terms of reference enjoin upon it to look to all aspects of the use, tapping and derivation of water for the river Uruguay, has designed and is currently building multi-use works on the river at Salto Grande. Decisions require the agreement of the representatives of both governments. Failing such agreement the matter is pursued through diplomatic channels, after which it is referred to arbitration 1/.

Brazil, as upstream country, was invited to discuss the project. It signed a joint declaration which recognized its rights to use any locks that may be built for navigation purposes, but reserved the right to claim damages for any flooding to which the works might give rise on its territory. For its part, Brasil undertook to not to build there any works that might adversely affect the river regime 2/.

With a view to building and operating the works scheme at Yacyretá on the River Paraná, the two countries concerned, Argentina and Paraguay, set up the Entidad Binacional Yacyretá 3/.

An ad hoc Committee appointed by the Comisión de Integración Física Argentina-Chilena held at Salta, 24-26 June 1974, has as its terms of reference to develop plans for the optimum and equitable use of each of their shared basins.

Argentina has also set up a Joint Argentina-Paraguay Committee with that country for the river Paraguay for the purposes of studying the reaches forming their common frontier 4/.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

A. At the national level

- (i) Water and Electric Power Board. This has as its terms of reference to study, plan, build, administer and operate all works for irrigation, watercourse protection, drainage and reclamation of insalubrious or flood-prone areas; to inventory and evaluate the water resources constituted by the rivers and lesser watercourses, their basins and other sources of water that can be made use of for the purposes of irrigation, drinking water supply and harnessing for power production; and, among other electricity-related activities, to study, plan, build and operate generating stations;

1/ Treaty of 30.XII.1946, Additional Agreement of 26.IX.1958, as revised on 20.X.1972.

2/ Declaration signed at Buenos Aires on 23.IX.1960.

3/ Treaty of 3.XII. 1973.

4/ Treaty of Buenos Aires, of 16.VI.1971.

- (ii) National Sanitation Systems Board. This was set up to study, plan, build, renovate, extend and operate works for the provision of drinking water and urban sanitation, including those for livestock, housing and industry; to prospect for, draw and use groundwater for human consumption purposes and to authorize third parties to install services in areas where the committee does not itself do so;

B. At the regional or basin level

(i) National status bodies

Hidroeléctrica Norpatagónica S.A. This company builds and operates waterworks and hydroelectric schemes in the Comahue region and, in particular, those of the El Chocón-Cerros Colorados scheme, which were built on the Neuquén and Limay rivers 1/.

(ii) Interjurisdictional bodies

The National Government has set up, jointly with the governments of the provinces of Buenos Aires, La Pampa, Mendoza, Neuquén and Río Negro, the Comité Interjurisdiccional del Río Colorado to carry out surveys, make recommendations and execute projects 2/.

(iii) Provincial bodies

The bodies referred to in section XII. B.(i) (end) are essentially regional development bodies, even though they are vested with certain powers of authority.

C. At the user level

Participation by the user in the administration of water (see Section XII, C (ii)) implies his joining in consortia whose object is to achieve the most efficient use of the resource or to secure an appropriate water regime, to prevent flooding, to supply drinking water 3/ or to administer a specific canal 4/.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

Financial contribution of the State; repayment; rate determination and rental policies.

As a general rule, the State finances major headwater works and many distribution systems and even, through the credit system, works installed within individual holdings.

In the case of hydroelectric schemes certain funds have been set up under the administration of the Secretariat of State for Energy. These are:

- (i) The National Electric Energy Fund, into which are paid (in addition to its other assets) proceeds from the tax on fuel and imported electric power and also the royalties payable for the use of hydroelectric sources 5/.

1/ Decree No.7925, of 23.X.1967.

2/ Agreement of 2.II.1977.

3/ Jujuy, Water Code, Arts. 98 to 122.

4/ Salta, Water Code, Arts. 141-143.

5/ Act No. 15.336, Sections 30 and 31.

- (ii) the Special Fund for the Electrical Development of the Interior, into which are paid contributions from the Fund mentioned under (i) together with proceeds from the electricity rates of the city of Buenos Aires and environs 1/;
- (iii) the Fondo El Chocón-Cerros Colorados and the Fondo de Grandes Obras Eléctricas, into which are paid a portion of the sales receipts for electricity, crude oil refined in Argentina and monies from other sources. The former fund concerns itself principally with the hydroelectric scheme from which it takes its name but also, secondarily, with other major schemes 2/.

The State recovers its capital outlay on hydroelectric schemes from electricity rates 3/.

The water supply service for inhabited areas provided by the National Sanitation Systems Board is funded from budget allocations which, in turn, are partially recovered from the electricity rates 4/.

The National Irrigation Act, as it is commonly known, provides that costs of construction, maintenance and operation of irrigation schemes shall be recovered from mandatory rates 5/.

Provincial water codes and special laws provide that the cost of hydraulic installations shall be recovered from the improvement tax or from taxes per registered hectare 6/. The user contributes to defraying costs of operation and upkeep pro rata with his concession 7/. This, however, does not mean that he must contribute to defraying all costs involved, since specific provision is made in some texts regarding the portion of those costs that he is expected to defray 8/.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

Water rights, like any property-based rights, enjoy the protection afforded property under the National Constitution. As a corollary of this, such rights, may be taken away only by legislative act or a judicial ruling grounded in law 9/.

Enforcement of water codes is a matter for the administrative authorities, whether water in the public domain or the policing of private waters is concerned. Decisions taken by these authorities are subject to judicial review 10/.

In all other matters relating to water and private rights coming within the purview of the Civil Code the judiciary is competent 11/.

1/ Act No. 15.336, Sections 32 and 33.

2/ Acts Nos. 17.574 and 19.287.

3/ Act No. 15.336, Sections 39 and 40.

4/ Act No. 13.577, Sections 19 and 69, (as inserted by Act No. 20.324, of 27.IV.1973.)

5/ Act No. 6546, Sections 7-11.

6/ Río Negro, Water Act No. 285, Sections 91 ff.; Salta, Water Code, Art. 100.

7/ Salta, Water Code, Arts. 139 and 211-215.

8/ Santa Fé, Acts Nos. 225 and 3375.

9/ National Constitution, Art. 18; Corrientes, Water Code, Arts. 4 and 5.

10/ Catamarca, Water Code, Arts. 212-214; Jujuy, Water Code, Art. 283; Salta, Water Code, Art. 264.

11/ Catamarca, Water Code, Art. 215, Jujuy, Water Code, Art. 283; Salta, Water Code, Art.264.

B. Modification, termination and re-allocation of water rights.

The without-prejudice-to-third-parties clause, which is implicit in every instance of constitution of rights over water, means that prior rights will prevail 1/.

As a general rule a concession can be expropriated and another substituted for it, enjoying a higher claim 2/.

It is also usual for the authorities to have powers to place restrictions on these rights when they erect or modify works (in which case they must pay compensation) 3/.

C. Water tribunals, courts and other judiciary water authorities

Several provinces have created special administrative courts for water matters. Thus, in Mendoza, first instance jurisdiction is assigned to the inspector of any canal managed by an irrigation association. In the second instance the matter is brought before a subdelegado (an administrative officer), thirdly before the superintendent-general for irrigation and, lastly, to a General Irrigation Council, as it is known 4/. The rulings given may be appealed by any of the resorts contemplated by the law where the impugning of administrative decisions is concerned.

D. Penalties

The Criminal Code prescribes penalties for unlawful diversion of water and for specified instances of pollution 5/. In practice, however, it is very difficult to prove a person's guilt or to identify the offender. Some provincial water codes overcome this difficulty by establishing a parallel system of prevention/penalization 6/. Offences are usually punishable with a fine, suspension of supply, forfeiture of the concession or permit or even with imprisonment 7/ and confiscation of equipment used 8/.

The San Luis Code provides for the dismissal of any official as penalty for establishing water distribution priorities in conflict with administrative law 9/. The codes of Cordoba and La Rioja contemplate sanctions designed to bring about the cessation of any prohibited act 10/.

XVI. CUSTOMARY WATER LAW AND INSTITUTIONS

The constant and uniform conduct of a community under the conviction that so doing is a juridical necessity constitutes a source of law only when positive legislation so provides or in situations for which no legal rule has been created 11/. Accordingly, the custom of a people will oblige the owner of land to receive runoff 12/ and local usage will determine the extent of servitudes 13/. It is also frequent for custom to regulate the distribution and administration of water to small and medium-sized communities where the law is silent or where there is no enforcing authority.

1/ Jujuy, Water Code, Art. 13, Salta, Water Code, Art. 17.

2/ See Section V, and Santiago del Estero, Water Code, Art. 134.

3/ Santiago del Estero, Water Code, Art. 37.

4/ Act of 24.IX.1888, Section 221.

5/ Code, Arts. 182, 186, 188, 190, 194-196 and 198-201.

6/ Corrientes, Water Code, Arts. 205 and 206; San Luis, Water Code, Arts. 181-185.

7/ Neuquén, Water Code, Art. 110 and Jujuy, Act No. 3127, Section 41(c).

8/ La Pampa, Water Code, Arts. 259 and 260.

9/ San Luis, Water Code, Art. 141.

10/ La Rioja, Water Code, Art. 157; Córdoba, Water Code, Art. 276.

11/ Water Code, Art. 17, introduced by Act No. 17.711.

12/ Ibid., Art. 2631.

13/ Ibid., Art. 3020.

BOLIVIA

I. INTRODUCTION

Bolivia is a landlocked country occupying a mid-way position in the South American land mass. Most of its watercourses flow out through the basins of La Plata and the Amazon. Separating this country from Brazil are the rivers Amazon, Mamoré and Guaporé, which empty into the latter basin, while the country has a brief frontage on the river Paraguay.

The cordillera of the Andes divides into two branches in the west of the country. These form a boundary to the Altiplano, a high plateau nearly 4 000m above sea level. Precipitation occurs mainly in the summer months, and varies, according to the year, between 380 and 710 mm. Climate is of the extreme continental type. In the altiplano lies Lake Titicaca (shared with Peru), which is navigable. More to the east are the Yungas - narrow, humid valleys covered with dense vegetation. In the lower-lying parts average rainfall can be as much as 890mm annually, and the climate is more equable. A valley region connects the Yungas with the tropical plains making up the remainder of the country. These latter are humid toward the north with a rainfall of 1778 mm and gradually become less so toward the south and east, with their 508 mm average.

Bolivia has a total land area of 1 098 581 km² and a population (1976 census) of 4 687 718, more than a million of whom live in La Paz, which is the seat of Government. Some 40 000 ha or 5.5 percent of the cultivated area is under irrigation.

The territory that is now Bolivia was originally colonized by Spain and formed part, successively, of the viceroyalties of Peru and of the Río de la Plata. In the earliest years of the Conquista was discovered the rich silver lode of Potosí, for a long time worked by slave labour. There were many risings of both indians and mestizos prior to 1809, when independence from Spain was proclaimed in La Paz. The movement was suppressed, but a long war of independence led up to the declaration of a new Republic on 6 August 1825. The Pacific litoral was absorbed into Chile following a war with that country between 1879 and 1884. Bolivia ceded the Acre territory to Brazil in 1903, and was obliged to accept the annexation of the southern Chaco by Paraguay following a bloody conflict lasting from 1932 to 1935.

II. LEGISLATION IN FORCE

The main sources of water law are given below:

1. The Constitution, voted on 2.II.67. Art.136 assigns to the State original domain over water;
2. Decree of 8.IX.1879 (converted into Act on 28.XI.1906). This gives detailed rules governing ownership and use of water 1;
3. the Civil Code, of 25.X.1830, which treats of the ownership of water, certain instances of use rights, servitudes and the juridical implications of the natural action of water 2;
4. the Criminal Code. This makes the flooding and the intentional destruction of water works a punishable offence;
5. the Mining Code (introduced by Decree-Law No 7.148 of 7.VIII.1935). This prescribes rules for the mining uses of water;

1/ In the notes Water Act is abbreviated: "W.A.".

2/ In the notes Civil Code is abbreviated: "C.C.".

6. the Electric Power Code (introduced by Supreme Decree No. 8438, of 31.VII.1968). This governs the harnessing of water for hydroelectric purposes and the servitude of aqueduct;
7. Decree-Law of 11.VI.1937, establishing a government reserve on all water in the public domain;
8. Decree-Law No.8424, of 17.VII.1968, governing navigation uses of water;
9. the General Forests Act, introduced by Decree-Law No. 11.086, of 13.VIII.1974. This enjoins upon the State to provide for watershed protection;
10. the Agrarian Reform Act (Decree-Law No. 3464, of 2.VIII.1953, converted into Act on 29.X.1956). This introduces changes in the rules governing water uses;
11. the Act of 9.I.1945 (enforcing regulations issued under Decree-Law No.1264, of 8.VII.1948). This declares a special regime for the Cochabamba irrigation scheme;
12. Decree-Law No.7388 of 15.IX.1965, instituting the National Water Management Directorate;
13. Supreme Decree No.8048, of July 1967, instituting the Municipal Drinking Water Supply, Sewerage and Rainwater Drainage Service;
14. Supreme Decree No. 14.367, of 14.II.1977, setting up the National Water Resources Directorate.

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

The Constitution provides that all water in lakes, rivers and thermal sources and such portions thereof and such energy deriving therefrom as can be exploited come under the original domain of the State, and that laws shall be introduced to prescribe conditions governing the ownership, concession and adjudication of such water 1/.

Supplementing these precepts of the Constitution, the Civil Code provides that the following shall be deemed to belong to the public domain: rivers large and small, being navigable or floatable, the seashore, land subject to the ebb and flow of the tide, ports, bays, sea roads and all parts of the national territory which are not susceptible of private ownership 2/.

A. Surface water resources

The Water Act includes under the public domain:

- (i) rainwater flowing in torrential regime watercourses;
- (ii) water rising, whether continuously or discontinuously, on land in the public domain;
- (iii) water of rivers that are navigable or floatable with or without artificial means or otherwise over all or part of their course 3/;
- (iv) water of all rivers and streams, though only in respect of its use for the primary needs of life and provided it is accessible by public thoroughfare 4/;

1/ W.A., Section 138.

2/ C.C., Art. 284.

3/ W.A., Section 4.

4/ Ibid.

- (v) water rising continuously or discontinuously on publicly owned land for as long as it flows there 1/;
- (vi) water flowing in publicly owned, naturally forming courses when such water originates on private land 2/;
- (vii) natural streams, lakes or lagoons occupying public land and fed from sources of publicly owned water;
- (viii) lakes, lagoons, streams and pools forming on public land 3/.

The same Act deems water to be private in certain cases, assigning to:

(i) the owner of the land:

1. rainwater falling and impounded on such land for as long as it flows there 4/;
2. water rising continuously or discontinuously on private land for as long as it flows there 5/;
3. water flowing across private land 6/.

(ii) the user:

water that he has availed himself of uninterruptedly for 30 years 7/.

State owned are the beds or channels of water flowing over public land, of rivers wholly or partially navigable, and of lakes and lagoons within publicly owned land.

To the owner of any land belong the natural beds of gullies or ravines in which rainwater flows, of watercourses that are neither navigable nor floatable and of lakes and lagoons lying within land owned by him 8/.

B. Groundwater resources

Groundwater belongs to the owner of the land where it rises to the surface. By this token, water rising on public land is public and, as such, may be assigned under concession 9/.

The holder of a mining concession acquires the ownership of the water that he draws in the course of his operations 10/.

1/ W.A., Section 5.

2/ Ibid.

3/ Ibid., Section 1.

4/ Ibid.

5/ Ibid., Section 5.

6/ Ibid., Section 7

7/ Ibid., Section 5: C.C., Arts. 1512 and 1516.

8/ W.A., Sections 43-45, 47, 49, 50 and 55.

9/ Ibid., Sections 20 ff.

10/ Mining Code, Art. 90.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

Water use rights are assigned to the owners of landed property and, as the case may be, to specified users, as explained under section III, above. These rights enjoy the protection which the Constitution accords to private property, but the use that is made of the water is subject to control by the authorities. Such rights, then, are not absolute rights.

Where public water is concerned, the Water Act grants use rights as follows:

- (i) in common: for navigation, fishing, personal hygiene, the washing of clothes, etc., livestock watering and dipping, subject to the regulations and by-laws:
 1. where the water flows in natural channels 1/;
 2. where it rises naturally on public land 2/;
 3. where it flows in man-made channels, provided piped off-takes are used 3/ and the limitations imposed by the authorities are observed;
 4. when the watercourse is neither navigable nor floatable, and is accessible by public thoroughfare, but only for household uses 4/;
- (ii) as accessory to the right of ownership over land:
 1. exclusively in respect of water which rises and ceases to flow within such land 5/;
 2. as governed by the needs of the property: in respect of water of lakes and lagoons where the banks form part of that property 6/;
 3. for irrigation purposes: any water flowing in natural channels 7/ or along a public thoroughfare 8/.

The owner of a mine enjoys the right to use water to work the mine when such water flows there or is drawn by his efforts 9/;
- (iii) by virtue of use proceeding for a statutorily determined period 10/;
- (iv) under concession or authorization.

B. Water use authorizations, permits or concessions

Uses other than those described above require authorization or concession. In broad terms:

1/ W.A., Sections 4 and 164.

2/ Ibid., Section 165.

3/ Ibid.

4/ Ibid., Sections 4 and 164.

5/ Ibid., Section 5.

6/ Ibid., Section 9.

7/ Ibid., Section 153.

8/ Ibid., Section 222.

9/ Mining Code, Arts. 85 and 90.

10/ W.A., Section 5; Agrarian Reform Act, Section 152.

- (i) they are granted upon application being made therefor and by public process 1/;
- (ii) costs of construction and upkeep of works for domestic supply and irrigation must be borne by the beneficiary, whether or not he actually makes use of the service;
- (iii) in the first stage of concession granting, a personal and non-transferable authorization is issued 2/;
- (iv) the volume of water granted will be that necessary for the normal pursuit of cultivation practices 3/;
- (v) concessions are granted on an ad hoc basis for specified periods of the year, for seasonal crops (and accordingly limited to these) 4/;
- (vi) they may not be sold disjunct from the property for the benefit of which they are granted nor may they be used for any other holding or for any other purpose 5/;
- (vii) they carry with them the right to occupy public land and to expropriate, or encumber with a servitude, private land for the purpose of erecting works necessary for the exercise of the rights conveyed by the concession 6/;
- (viii) they lapse upon the expiry of a predetermined time-limit, upon the cessation, by reason of failure on the part of the grantee to comply with the conditions attaching to the grant 7/, upon expropriation 8/ and upon surrender by the holder.

V. ORDER OF PRIORITIES

Concessions to use public water are subject to the observance of priorities established by law, in the following order:

1. water supply to population centres;
2. water supply to railways;
3. irrigation;
4. shipping canals;
5. mills and factories, vessels in transit, floating bridges and fish farms and hatcheries.

1/ W.A., Section 5; Agrarian Reform Act, Section 153.

2/ Water Irrigation Regulations, Reg.14.

3/ Ibid., Reg. 15.

4/ Ibid., Reg. 16.

5/ Ibid., Regs. 18 and 19.

6/ W.A., Section 193; Water Irrigation Regulations, Reg. 52.

7/ Water Irrigation Regulations, Regs. 17 and 18.

8/ W.A., Section 205.

Within each of the above classes, preferential treatment is accorded to those having the greater importance and usefulness and, other things being equal, to the first applicant 1/.

Concessions are not granted for hydroelectric, mining or stockraising purposes.

Where the supply of the Cochabamba irrigation scheme is concerned, a more detailed scale of priorities has been laid down, allowing for the size of holdings under irrigation, the crops grown and, as appropriate, any water-driven machinery 2/.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and municipal uses

The Water Act makes express reference to these uses when it is a question of authorizing joint use, as in the case of naturally flowing water 3/, or of reserving a use to the riparian in the case of water flowing in man-made channels 4/.

A concession may be granted for the provision of household supply services 5/.

B. Agricultural uses

As will be noted in Section XII, below, rules governing irrigation uses appear in Regulations made by the Ministry of Agriculture.

The Cochabamba irrigation scheme is governed by regulations of its own. Both in its case, however, and with all other schemes, charges are levied on the beneficiary (though within the limits of his ability to pay) as a means of meeting maintenance costs.

Joint use is contemplated only in the case of animal husbandry.

C. Fishing

Fishing may be practised freely in navigable and floatable waterways and private conduits conveying public water provided the flow is not interfered with 6/.

The permission of the owner is required for fishing in private watercourses and lakes 7/.

D. Hydropower^{8/}

The harnessing of water for hydroelectric generation must proceed with multiple use in view and respect the principles of sound management and those of integrated use of the water itself and other natural resources. Community interests must be respected -food supply, public health, agriculture, flood control, fisheries conservation and the returning of the water to its normal channels in its original condition.

1/ W.A., Section 204.

2/ Supreme Decree No. 1264/48, Arts. 27 and 28.

3/ Ibid., Art. 164.

4/ Ibid., Art. 166.

5/ Ibid., Art. 214.

6/ Ibid., Arts. 167 and 169.

7/ Ibid., Art. 168.

8/ Ibid., Arts. 167 and 169.

E. Industrial and mining uses

Water use concessions for industry are granted in perpetuity 1/.

Mining concession holders may make use of free-flowing water within the property held by them for mining purposes, subject to the obligation of returning the water to its channel following such use 2/. If the water in question is privately owned, the concession holder may demand its expropriation. Following use in one mine, it may be expropriated yet again in favour of another mine 3/.

The concession holder acquires ownership of the point of emergence of the water or underground current that he brings to the surface in the course of his activities. However, other concession holders may make use of the excess and may by prescriptive process deprive the person so bringing the water to the surface of his use right 4/; and they may also apply to the mining authorities for a concession to use public water 5/.

F. Transport

Bolivia's rivers are open for navigation freely to vessels of whatever flag 6/.

A public hearing is held whenever a watercourse is declared to be navigable or floatable, and the authority determines the compensation payable to users aggrieved by the declaration. The same authority specifies those points of the coast where vessels may freely be discharged and embark persons and goods, and also grants permission for widening and otherwise improving channels 7/.

Railway operations enjoy high priority, second only to water supply for population centres 8/.

G. Medicinal and thermal uses

Water susceptible of these uses may, when not so given over, be expropriated 9/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection.

Irrigators are required to install any works needed in order to regulate flow and improve the stability of structures for the due management of the resource 10/.

B. Soil erosion and siltation

The State is required to provide for water protection by means of conservation or

1/ W.A., Section 264.

2/ Mining Code, Art. 85.

3/ Ibid., Arts. 86 and 89.

4/ Ibid., Art. 90.

5/ Ibid., Art. 282.

6/ Decree of 17.1.1853.

7/ W.A., Sections 174-179.

8/ Ibid., Sections 204 and 217.

9/ Ibid., Sections 18.

10/ Irrigation Regulations, Reg. 45.

improvement measures or by establishing forest stands, and by providing works for impounding water and regulating watercourses 1/.

The provision of protection by means of forest stands or other kinds of plant cover is mandatory in the case of feeder watersheds, springs, streams, sources for population supply, irrigation works and torrents which give rise to flooding 2/'.

The bodies responsible for the management and operation of dams, hydroelectric generating stations, aqueducts and irrigation and similar works are expected to afford the forest authorities all collaboration for watershed protection needs 3/.

C. Drainage and sewerage

Owners of the larger portion of an area that has been flooded may demand of all owners in that area to contribute to the draining off of the water, or to surrender their holdings in favour of those so contributing 4/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

The public authorities administer public water and provide for law enforcement in connection with privately owned water as regards public health and where the safety of persons is concerned. Pursuant to this principle, the Water Act prohibits:

- (i) the dumping of substances which upon decomposition impair water quality 5/;
- (ii) the discharging by industry of substances harmful to public health and the plant cover 6/.

The Regulations under the Act contain a similar prohibition 7/, while the Mining Code requires any mine operator causing the pollution of water to compensate the aggrieved owner 8/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

Any owner may prospect for and make use of groundwater underlying his land, but he may not tap water belonging to another or sink wells within the drawdown radius of an existing well (2 m in urban areas; 15 m in rural areas) 9/.

For prospection for water on public land a special, exclusive authorization is required entitling the holder to be awarded the relevant concession. The concession lapses if the person obtaining it fails to carry out the works prescribed under its terms or allows those works to become silted up or the water to become unusable in any way 10/.

1/ General Forests Act, Section 4(b).

2/ Ibid., Section 63

3/ Ibid., Section 44

4/ W.A., Sections 84-92.

5/ W.A., Section 270.

6/ Ibid., Section 263.

7/ Irrigation Regulations, Reg. 42.

8/ Mining Code, Art. 87.

9/ W.A., Sections 20 and 21.

10/ Ibid., Sections 23-33

The authorities may declare special areas where the volume of water that may be drawn is restricted, or prescribe the volume that may be so drawn, and the location and other characteristics of the wells sunk there. The wells in question must be supplied with control valves, and they may not be repaired, enlarged, deepened or replaced with other wells, without the approval of the said authorities 1/.

The owner of any land that does not have sufficient water for his requirements or would have to provide costly works in order to obtain that water is authorized to draw it from the land of a neighbour if the latter has more than he needs 2/.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

Bolivia has no general legislation on this subject, though the Water Act and the Irrigation Regulations deal with it under the rules they prescribe for water use and servitudes.

The Regulations in question prescribe that offtake, diversion or impounding works shall be installed in places responding to the most favourable technical and economic conditions 3/.

The Water Act provides that the servitude of aqueduct shall be exercised by means of a covered conduit where suitable, and considerations of depth or proximity to dwellings and thoroughfares so counsel, and by piping in order to prevent contamination or damage to works and buildings. In other cases the conduit may be of the open kind, though bridging structures must be provided where necessary 4/.

The owner of any land where an aqueduct passes must allow workpeople access for cleaning and other maintenance tasks 5/.

Whenever irrigation projects are being carried out with government funds, the layout and the approximate limits of the land concerned must be made public. Once the final plan is approved, interested parties are informed with a view to obtaining their consent in order to put the work in hand. Otherwise expropriation is resorted to 6/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

The authorities may declare groundwater tapping areas where limitations will be placed on the number of wells and on the volume of water that may be abstracted for irrigation needs 7/.

Similarly, they may declare close seasons in areas both of the public and of the private domain extending over some or all of a basin in the interests of forest, soil and water conservation 8/.

1/ Irrigation Regulations, Regs. 61-65.

2/ Ibid., Reg. 66.

3/ Ibid., Reg. 50.

4/ W.A., Sections 113, 121 and 132.

5/ Ibid., Section 107.

6/ Irrigation Regulations, Regs. 71-77.

7/ Ibid., Regs. 61-63.

8/ General Forests Act, Sections 38-4

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The following summarizes the jurisdiction vested in the ministries and their departments where water is concerned:

- (i) The Ministry of Transport, Communications and Aviation. An Undersecretariat for Public Works has a Water and Electrification Directorate which has among its responsibilities those of designing, installing and renewing water supply and sewerage systems, designing and constructing hydroelectric plants, providing navigation needs in conjunction with the appropriate National Directorate, law enforcement in water matters and conducting hydrological surveys and research. Also reporting to this same Ministry is the National Hydrological and Meteorological Service, which conducts observations and acts as a clearing house for information in these fields 1/;
- (ii) the Ministry of Peasant and Agricultural Affairs. As part of its overall terms of reference of promoting agricultural development, this Ministry, acting through its Irrigation Division, is responsible for studying, planning and centrally coordinating government activities in the field of irrigation and installs and operates the relevant works 2/;
- (iii) the Ministry of Energy and Hydrocarbon Resources acts through its National Directorate of Water Resources to regulate, exercise official control over, and coordinate all activities having to do with the use of the country's resources 3/;
- (iv) the Ministry of Welfare and Health promotes environmental sanitation and the provision of domestic water supply and sewerage services for the smaller population centres;
- (v) the Ministry of Town Planning and Housing promotes the provision of water supply and sewerage services to the larger population centres;
- (vi) the Bolivian Development Corporation plans basin development and conducts surveys for exploitation purposes;
- (vii) the Rivers and Lakes Corps. This command has under it the National Hydrography and Navigation Department, which conducts the hydrographic survey.

B. At the intermediate level

The National La Plata Basin Commission coordinates all studies and projects affecting this basin.

C. At the local level

The Water Act empowers municipalities to authorize prospection for groundwater 4/ and the use of the resource by mills and factories for hydropower purposes 5/.

Irrigation association boards, which are elected by the assembly of users, have authority to determine the sharing of water, inspect and supervise flowing or impounded water, follow up works maintenance and repair, levy and collect rates and administer the proceeds 6/.

1/ Acts Nos. 8286, of 6.III.1968, and 7388, of 15.XI.1975.

2/ Act of December 1941.

3/ Supreme Decree No. 14.367, of 14.II.1977.

4/ W.A., Section 27.

5/ Ibid., Section 261.

6/ Irrigation Regulations, Regs. 33; 34 and 36-38.

D. At the international level

Bolivia signed the Declaration of the Seventh International American Conference of Montevideo (1933) and acceded to the juridical and administrative system established by the respective States for their basin where the Río de la Plata is concerned (see under Argentina, XII, D, and for the Amazon basin.

Where the last-mentioned basin is concerned, Bolivia is party to the Amazon Cooperation Treaty (Brasilia, 4 July 1978), the main features of which are as follows;

1. Parties to the Treaty are Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela.
2. The Treaty applies to the entire Amazon basin, and also to certain territories of one of the parties which by reason of their geographical, ecological and economic characteristics are deemed to be closely related with it 1/.
3. The Treaty proclaims that the exclusive use of the natural resources in the territories of the respective States is inherent in the sovereignty exercised by each of them, the only restrictions countenanced being those deriving from international law 2/. The Parties may carry out projects in their territories in accordance with the principle of the comity of neighbouring and friendly nations 3/.
4. In the matter of the rights and obligations instituted by the Treaty the Parties agree to undertake joint action to promote the harmonious development of their respective Amazonian territories, such as will be conducive to equitable and mutually advantageous results, to the conservation of the environment, and to the conservation and use of natural resources 4/. Reciprocal assurance is given for the fullest possible freedom of navigation, save as regards local cabotage 5/ and to take action designed to improve navigability of their waters 6/; also, to promote scientific research and exchange of information and technical personnel 7/ and to make every effort to secure the rational use of water resources 8/.
5. A periodic meeting of the Ministers of Foreign Affairs of the respective States, held in turn in each of them, directs Treaty implementation 9/.

An Amazon Cooperation Council consisting of senior diplomats of the member States follows up the implementation of the directives given 10/. The Secretariat is provided by the State whose turn it is to host the ordinary meeting of the Council 11/. Unanimity is required for decisions taken by the meeting of Ministers and by the Council 12/.

Bolivia has entered into preliminary conventions with Peru for the Lake Titicaca survey 13/.

1/ Treaty, Art. 2.

2/ Ibid., Art. 4.

3/ Ibid., Art. 16.

4/ Ibid., Art. 1.

5/ Ibid., Art. 3.

6/ Ibid., Art. 6.

7/ Ibid., Art. 7.

8/ Ibid., Art. 20.

10/ Ibid., Art. 21.

11/ Ibid.

12/ Ibid., Art. 25.

13/ Lima (7.VII.1935) and La Paz (20.IV.1955 and 30.VII.1955).

A convention with a similar object deems the two countries to exercise indivisible and exclusive condominium of the waters of the lake 1/.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

A. At the national level

The National Electricity Company provides electricity supply. Waterfalls are harnessed for generating purposes.

B. At the local level

The Municipal Drinking Water, Sewerage and Rainwater Drainage Service (SEMAPA) provides the facilities that its name indicates in Cochabamba Department 2/, while similar bodies do so in other departments. Otherwise, the municipal authorities provide drinking water supply and sewerage services.

C. At the user level

The irrigation association boards (cf. XII, C, above), decide on matters of water sharing and provide for the upkeep of the relevant works.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

Owners of land served by irrigation and drainage works are required to defray the costs of their construction, administration and maintenance 3/. In the Cochabamba National Scheme, these costs are covered by means of a fixed rate per hectare served, a fixed volume rate for the water, and the electricity rate 4/.

The National Forest Fund finances the afforestation work done in land areas and the stands planted on a priority basis referred to in Section XI (end) 5/.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

The Water Act recognizes ownership rights over water lawfully acquired prior to its entry into force 6/.

B. Modification, termination and re-allocation of water rights.

Certain water rights may be expropriated.

C. Water tribunals, courts and other judiciary authorities

There are no water courts as such in Bolivia. The boards of the irrigation associations settle disputes arising among members of one and the same association by means of appeal to the Irrigation Directorate. The same Directorate also deals with conflicts between members of different associations. In either case the matter may still be taken to the ordinary courts 7/. The latter may also be appealed to

1/ Convention for the preliminary economic study concerning the use of the waters of Lake Titicaca (La Paz, 17.II.1957).

2/ Supreme Decree No. 08048/1967.

3/ Irrigation Regulations, Regs. 78-82.

4/ Act of 9.I.1945, Sections 5-7.

5/ General Forests Act, Section 84(c).

6/ W.A., Section 293.

7/ Irrigation Regulations, Regs. 39-41 and 85.

against any decisions of the same authority affecting rights acquired and the imposition of servitudes and other charges on property 1/.

The ordinary courts have jurisdiction in matters affecting the ownership of water, its channels, banks, the possession of private water, and easements attaching to civil law rights or under priority claims to the use of water 2/.

D. Penalties

The Criminal Code prescribes custodial penalties for the destruction of specified hydraulic installations 3/.

Administrative penalties consist of fines and suspension or forfeiture of rights 4/.

1/ W.A. , Section 289.

2/ Ibid., Section 290.

3/ Criminal Code, Art. 244.

4/ Irrigation Regulations, Regs. 41-43.

BRAZIL

I. INTRODUCTION

Brazil occupies practically half of the land area of South America. The Amazon, which has the largest volume of flow of any river in the world, crosses the national territory from its western frontier to the Atlantic receiving tributaries from Colombia, Ecuador, Peru, Bolivia, Venezuela, Guyana and Suriname in the process. A further characteristic of the Amazon catchment area is its connection with the Orinoco basin. Rising within Brazilian territory are the rivers Paraná, Paraguay and Uruguay, which constitute the main streams of the basin of La Plata.

Despite the country's having no high mountains, there are elevations permitting waterfalls of considerable size. Among these may be named the Paulo Alfonso on the San Francisco river, the Guairá, or Sete Quedas, on the frontier with Parguay and the cataracts at Iguazú on the Argentine frontier.

The fact that its land area stretches from the hot and humid equator to the dry temperate zone of the south explains how Brazil is the home of an extensive variety of animal and plant species. The country is a major producer of coffee, timber, tropical products and livestock and also of minerals, especially iron. Its industry is growing apace. A vast road network has been laid out and is being expanded, while the many hydroelectric facilities lay claim to the highest aggregate generation potential in the world. The Paulo Alfonso dam has a 6 774 MW rating, while another being built jointly by Brazil and Paraguay is planned for 12 600 MW.

Brazil is one of the largest countries in the world, with an area of 8 511 965 km². Its population numbers 117 million souls.

What is now Brazil was originally colonized by Portugal, Spain and the Netherlands. Huge contingents of slaves were brought over from Africa to work the sugar plantations and later the mineral deposits, and their descendants have to-day become part and parcel of Brazilian society. The various groups of colonizers fought among themselves, and slave risings occurred. Upon Napoleon's invasion of their country, the Portuguese royal family took up residence in the colony, which in 1815 was declared a Kingdom in union with the metropolitan country. Independence from the latter was declared in 1822. The second half of the 19th century witnessed a bloody war with Panama and the adoption (in 1889) of a republican form of government. Brazil is now organized as a Federative Republic.

II. LEGISLATION IN FORCE

The federative system of government brought in by the National Constitution provides for a sharing of jurisdiction in water matters between the Federal Government and the respective States making up the union. As a consequence of this, the main sources of law need to be classified according to the level of government at which they were introduced. Thus;

A. National

1. The National Constitution, passed on 24 January 1967, amended on 17 October 1969, provides (Arts. 4 and 5) for apportioning ownership of water between the nation and the respective States; defines (Art. 8 (vii), (xiii) and (xvii), and Art.173) the material scope of national and local government jurisdiction and (Arts. 168 and 173) prescribes specific rules where the use of water for hydroelectric generation purposes is concerned;

2. the Water Code, introduced by Decree No. 24.643, of 10 July 1934, amended by, inter alia, Decree-Law No. 852, of 11 November 1938, contains comprehensive rules governing water;
3. the Civil Code of 1972 contains rules governing servitudes and other limitations on ownership where water is concerned 1/;
4. the Criminal Code, introduced by Decree-Law No.1004, of 21 October 1969, prescribes penalties (Art.300) for water pollution and damage to waterworks;
5. the Mining Code, introduced by Decree-Law No.1985, of 29 January 1940, as amended by Decree-Law No. 277, of 28 February 1967, contains the law governing groundwater and the mining uses of the resource;
6. the National Health Code, introduced by Act No. 2312, of 3 September 1954 and Decree-Law No. 49.974-A, of 21 January 1961, legislates (arts. 37 to 39) in matters of pollution;
7. the Forest Code, introduced by Act No. 4771, of 15 September 1965, prescribes rules governing forests and plant cover protection, springs, watercourses, lakes and reservoirs (Art.2 (a));
8. Decree-Law No.1413, of 14 August 1975, prescribes measures designed to secure the protection of the water environment against pollution from industrial sources.

B. Legislation of the individual States

The most significant legislation introduced by the States is to be found in:

9. The Constitution of the State of São Paulo, of 13 May 1967, amended on 30 October 1969. This provides for the creation and maintaining in being of a basic sanitation fund;
10. the Public Health Code of the State of São Paulo, enacted by Decree-Law No. 211, of 30 March 1970. This lays down rules governing the sanitary condition of water.

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

A. Surface water resources

Lakes and any flowing water encountered on land belonging to the Nation or washing more than one State or constituting an international frontier or, again, extending beyond the frontiers of the Nation are the property of the latter 2/. Lakes encountered on land belonging to any State so belong as do also any rivers rising and completing their course there 3/.

In the light of this same - constitutional - principle is to be interpreted the Water Code, which creates a category of "common waters", non-navigable and non-floatable watercourses 4/ also figuring thereunder. Only waters encountered on private land when not otherwise classified as public or "common" water are deemed to be private 5/.

1/ In the notes Civil Code is abbreviated "C.C.".

2/ National Constitution, Art. 4.

3/ Ibid., Art. 5.

4/ Water Code, Art. 7.

5/ Ibid., Art.8.

B. Groundwater resources

The Mining Code treats water as a mineral and by that token coming under the administration of the Federal Government 1/.

The Water Code declares any groundwater contributing effectively to the navigability or floatability of a river to be public property 2/, and spring water to be the property of the person on whose land it rises 3/.

C. Rainwater

Rainwater becomes the property of the owner of the land where it falls, and so remains until it flows out of such land 4/.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

Publicly owned water may be used:

(i) in common, for whatever purpose, provided no offtake device is employed and the laws of the place are complied with. Use in common entails no payment when it is resorted to in order to satisfy primary, vital needs but a charge may be made in other cases 5/;

(ii) without restriction:

1. in the case of water harnessed for hydroelectric generation purposes prior to the promulgation of the Code, provided this use is reported to the authorities within a statutory time limit. The right persists as long as the use is not interrupted 6/;
2. for hydroelectric purposes for a power rating of less than 50 kW for the user's own needs. There is an obligation, for statistical record purposes, of declaring such use 7/;
3. for farming, industrial or hygiene needs when the use is at an insignificant level, even when some diversion of the water is involved 8/;
4. for primary vital needs;

(iii) as accessory to ownership rights over landed property. Landowners may make use of water underlying their property provided no adverse effects on prior uses or any diversion of the water ensue 9/;

(iv) by authorization or concession.

1/ Mining Code, Art. 115.

2/ Water Code, Art. 2 (c)..

3/ Ibid., Art. 89.

4/ Ibid., Arts. 103 and 104.

5/ Ibid., Arts. 34-36.

6/ Ibid., Arts. 139(1) and 149.

7/ Ibid., Art. 139(2) and (3).

8/ Ibid., Art. 43.

9/ Ibid., Art. 96.

B. Water use authorizations, permits or concessions

(i) It is lawful to obtain water by means of an offtake for the purpose of hygiene, industry or farming provided the public utility aspect of the resource is not adversely affected - this under federal or state authorization, according to whichever ownership is vested therein 1/. Authorization for hydroelectric generation purposes will be discussed below under Section VI. Authorizations do not constitute a delegation of public powers 2/; they are granted for a fixed term 3/ and are subject to the proviso that no hindrance is thereby caused to navigation 4/. The grant is also dependent upon the consent of the authorities 5/, and may also entail additional rules to be observed.

(ii) Concessions

1. issued by the federal or state authorities (according to whichever owns the water) are required for offtakes intended to serve the needs of hygiene, industry or farming deemed to be of public utility 6/;
2. issued by the federal authorities (and only these) are required for harnessing water for public service hydroelectric generation purposes or whenever the power rating is in excess of 150 kW 7/.

Concessions are granted for a fixed term, not exceeding 30 years 8/ (although in special cases of hydroelectric application they may extend to 50 years 9/), provided third parties are not thereby adversely affected 10/. They do not confer ownership over the water 11/, may not be transferred to third parties without the consent of the authorities 12/, and may not be applied to uses other than those specified in the concession itself 13/. When the land or industrial plant is made over to a third party, the concession, too, is transferred to the new owner. Concessions cease as described in Section XV, B below 14/.

V. ORDER OF PRIORITIES

A. Among different uses

Priority is accorded, once primary vital needs have been covered, to commercial navigation 15/. However, special state or federal law may prescribe other priorities and even abolish "common uses" 16/.

B. Among existing uses

Concessions are granted only on condition that third parties are not adversely affected 17/.

1/ Water Code, Art. 43.

2/ Carvalho de Mandoça, M.I. Ríos e aguas correntes, No. 119.

3/ Water Code, Art. 43.

4/ Ibid., Art. 48.

5/ Ibid., Art. 52.

6/ Ibid., Art. 43.

7/ Ibid., Art. 140.

8/ Ibid., Art. 43(2).

9/ Ibid., Art. 157.

10/ Ibid., Art. 45.

11/ Ibid., Art. 46.

12/ Ibid., Art. 52.

13/ Ibid., Arts. 49 and 50.

14/ Ibid., Art. 50.

15/ Ibid., Art. 48.

16/ Ibid., Art. 46.

17/ Ibid., Art. 46.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

There is no specific legislation on domestic use as such, though priority is accorded to primary vital needs. The States and the municipalities have made regulations governing these matters.

B. Municipal uses

Here again there is no specific legislation.

C. Agricultural uses

No separate rulemaking has been introduced where agriculture is concerned, though the State of São Paulo has made regulations for irrigation in the area of the Paraíba basin under its jurisdiction.

D. Fishing

Whilst there are no specific rules governing the use of water here, the fisheries laws require owners and concession holders of impounding structures to take measures to secure the protection of the aquatic fauna 1/.

E. Hydropower

The National Constitution assigns powers to the Federal Government to operate, itself or through others under concession or authorization, electricity supply services 2/, including those fed from hydroelectric schemes, the latter being reserved to Brazilian nationals or companies registered in the country. The use of water for low-power generation is also unrestricted 3/.

The Water Code contains comprehensive rules governing this use. Concessions are required for harnessing waterfalls and other forms of hydraulic energy where the rating exceeds 150 kW and where the public (federal, state or municipal) service or commercial electricity schemes are being fed. 47. Riparians owning the majority reaches of a watercourse need only an authorization in order to generate beyond 50 and up to 150 kW for their exclusive use 5/. Ratings under 50 kW do not require authorization 6/.

The waterfalls and other forms of hydraulic energy here referred to are deemed to constitute immovable property but distinct from the land on which they are encountered 7/. If they involve public or State water, then they are property of the Nation which may not be alienated or become subject to prescription 8/. Where they involve "common" waters or private waters, they belong to the owner of the land concerned 9/.

Concessions for hydroelectric use are granted by presidential decree exclusively to Brazilian nationals or Brazilian-registered companies 10/. They carry with them permission to use public land, to acquire private land, water and associated rights, to

1/ Decree-Law No.221, of 28.II.1967, Art. 36.

2/ National Constitution, Art 8, xv, 6.

3/ Ibid., Art. 173.

4/ Water Code, Art. 140.

5/ Ibid., Art. 121.

6/ Ibid., Art. (.).

7/ Ibid., Art, 146.

8/ Ibid., Art. 147.

9/ Ibid., Art. 146.

10/ National Constitution, Art. 173.

constitute easements and to build or install roads, railways, telegraph lines and electric conduits 1/; they also entail the obligation to furnish performance guarantees, to provide instrumentation for gauging and discharge recording and to keep a reserve of electric power for the public service 2/.

F. Industrial and mining uses

These two uses are not covered by any specific legislation, save insofar as restrictions are placed on industrial and mining activities likely to cause water pollution 3/.

For the purposes of prospecting and working mines, servitudes are imposed for water impounding and supply, drainage and the use of watering points 4/.

G. Transport

Navigational uses enjoy a marked priority vis-à-vis other uses 5/, cabotage, inter alia, being reserved to Brazilian nationals 6/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection

The Federal Government organizes on-going protection against flooding 7/.

Users and owners of the banks of bodies of public water are required not to impair or obstruct the regime of any watercourse or navigation or flotation unless they hold a concession allowing them to do so 8/. They must remove any obstacles to such use when these originate on their land 9/.

B. Soil erosion and siltation

The Forest Code brings within the purview of the juridical category where permanent conservation is mandatory all wooded stands and other natural forms of vegetation situated along watercourses, around lakes, lagoons and other bodies of water, around springs and other points where water emerges, and in mountain areas and areas set aside for erosion control purposes 10/. This means that such stands and other vegetation may not be destroyed without an authorization from the national Executive for the purpose of carrying out works, plans, activities and projects of public utility or social interest 11/; also, that they may not be distributed under land reform plans to be turned to agricultural use 12/, and that they may be forested or reforested by the federal authorities 13/.

Land reform plans are required to include soil conservation schemes 14/.

1/ Water Code, Arts. 150 and 151.

2/ Ibid., Art. 153.

3/ Decree-Law No. 1413, of 14.VIII.1975; Water Code, Arts. 11 and 12; Mining Code, Art. 47.

4/ Mining Code, Arts. 59-62.

5/ Water Code, Arts. 34, 38 and 48.

6/ Ibid., Art. 39.

7/ National Constitution, Art. 8 (12).

8/ Water Code, Art. 53.

9/ Ibid., Art. 54.

10/ Act No. 471, of 15.IX.1965.

11/ Ibid., Section 3.

12/ Ibid., Section 8.

13/ Ibid., Section 18.

14/ Act No. 4504, of 30.IX..1964.

C. Drainage and sewerage

Whenever the authorities declare any marshland to be insalubrious, they (or the private owner) provide for it to be drained. If the work is undertaken by the public authorities on private land, then the owner of the latter is required to share in the cost 1/. The State may also expropriate the land in question against compensation at the value it had before the relevant works were undertaken 2/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

A. Waste and misuse of water

Water may be used only for the purposes set out in the relevant concession 3/. No owner of land may waste water falling there as rain 4/.

B. Recycling and re-use of water

Regulations may be made prescribing measures designed to reconcile the different uses of water 5/. Those cited below under C and D have the further object of encouraging re-use of water.

C. Health protection

In addition to the rules designed to protect water from pollution (and, implicitly to afford protection for people's health), the Code prescribes the treatment of effluents in order to ensure that the quality of the receiving body of water shall not be impaired 6/.

D. Pollution

There are numerous provisions in the federal 7/ and State 8/ laws and regulations prohibiting water pollution. The Water Code 9/ also contains this prohibition, but empowers authorities to allow farmers and industrial operators to discharge polluting substances where the interests of agriculture or industry make this necessary, obliging them, however, to provide for clean-up or natural drainage and to pay compensation for any loss or damage caused 10/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

Any landowner may appropriate groundwater encountered under his property, provided prior uses are not thereby adversely affected or water belonging to others is diverted from its natural course 11/. No damage must result to neighbouring property 12/; nor

1/ Water Code, Arts. 113-115.

2/ Ibid., Art. 116.

3/ Ibid., Art. 49.

4/ Ibid., Art. 103(1).

5/ Ibid., Art. 51(a).

6/ Decree No. 4997-A, Arts. 37 and 38.

7/ Criminal Code; Decree-Law No. 23.777, of 23.I.1934, Arts. 1 and 2; Decree-Law No.5452, of I.V.1943, Art. 175; Decree Law No. 221, of 27.II.1967, Art. 37; Law No. 5357, of 17.XI.1967.

8/ Minas Geraes, Act No. 2126, of 20.I.1960, Sections 1, 2 and 6; São Paulo, Acts Nos. 1561, of 29.XII.1951, Section 94; 2182, of 23.VII.1953, Sections. 1, 3 and and 3068, of 14.X.1955, Section 1.

9/ Water Code, Art.109.

10/ Ibid., Arts. 11 and 112.

11/ Water Code, Art. 96.

12/ Ibid., Art. 97.

must well water or spring water already belonging to others be polluted or otherwise rendered unfit for its normal use 1/.

An administrative concession is required before anyone may open up a well on publicly owned land 2/.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

A. Waterworks construction

Water offtakes are subject to administrative regulations 3/.

B. Waterworks protection measures

The owner of a watercourse or conduit may consolidate the banks, and the owner of the servient tenement across which such course or conduit lies must not plant or otherwise crop these 4/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

The water in any area periodically left exposed as a result of drought is deemed to be public and for the use of the community 5/.

The Federal Government and the governments of the States and the municipalities may declare parks and forest reserves within which no use may be made of naturally occurring water 6/.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The President of the Republic, and the ministries and their departments and bodies reporting to them have powers and responsibilities as described below:

- (i) President of the Republic; to grant concessions for hydroelectric generation purposes;
- (ii) Ministry of the Interior; to assist the President of the Republic in matters of regional development, basic sanitation, drought and flood control and irrigation works 7/;
- (iii) Ministry of Mines and Energy; to grant authorization for federal water offtakes and to examine applications for concessions; to extend the terms of, or otherwise modify, concessions granted by the Executive; to deal with problems of energy, geology and hydrology and the relevant resources for power generation purposes and, in coordination with other branches of the administration, to study their integrated development and that of groundwater; to develop, direct, coordinate and inspect energy programmes of the States; to

1/ Water Code, Art. 98.

2/ Ibid., Art. 101.

3/ Ibid., Art. 51(1).

4/ Ibid., Arts. 128 and 129.

5/ Ibid., Art. 5;

6/ Act No. 4771, Section 5.

7/ Decree-Law No. 200, of 25.II.1967, Art. 39.

enforce water law and, acting through the National Department of Water and Energy, to promote and develop hydroelectric generation, to conduct water surveys and to inspect, guide and provide official control over water use 1/;

- (iv) Ministry of Agriculture: to assist the President of the Republic in matters pertaining to crop and animal husbandry, fisheries, soils, meteorology and climatology 2./;
- (v) Ministry of Health; to provide official control over sources of water susceptible of use for interstate or international supply 3/.
- (vi) Ministry of Transport: to assist the President of the Republic in all matters pertaining to ports and transport by water 4/ and, acting through its National Department of Ports and Navigable Waterways, to plan the construction, improvement and upkeep of waterways 5/;
- (vii) Special Secretariat for the Environment: to promote the enactment of rules and standards for the conservation of the environment, in particular the water environment 6/;
- (viii) National Meteorology Department: to plan, coordinate and control the national meteorological network, to exchange and publish information and to conduct surveys and research 7/;
- (ix) Rural Engineering Department: to survey, plan, guide, supervise, control and develop programs, projects and activities having to do with irrigation, drainage and soil and water conservation for agricultural purposes 8/;
- (x) Forest Development Institute of Brazil: to formulate forest policy; to guide, coordinate and implement measures necessary for the rational use, protection and conservation of renewable natural resources and forest development; to undertake reforestation for ecological purposes; to administer national parks; to authorize, guide and exercise official control over private forest undertakings, and to enforce forest legislation 9/;
- (xi) National Land Settlement and Agrarian Reform Institute: to promote the development of and coordinate the Agrarian Reform National Plan, which it is intended shall include the provision of works for watercourse regulation, diversion dams, submerged dams, drainage, irrigation, sanitation and soil conservation 10/.

B. In the respective States

The respective State authorities grant concessions and authorizations for water use and exercise law enforcement powers over water not otherwise under federal jurisdiction.

1/ Water Code, Arts. 150 and 171; Decrees Nos. 62.628, of 30.VI.1968 and 57.810, of 14.II.1966.

2/ Decree-Law No. 200, of 25.II.1967, Art. 39.

3/ National Health Code, Art. 33(3).

4/ Decree-Law No.200, of 25.II.1967, Art. 39.

5/ Act No. 4213, of 14.II.1963.

6/ Decree No. 73.030, of 30.X.1973.

7/ Regulations of the Ministry of Agriculture, Resolution 42, of 12.XII.1968, Art. 91.

8/ Ibid., Reg. 87 (I and II).

9/ Decree-Law No. 289, of 28.II.1967, Art. 3.

10/ Act No. 4504, of 30.XI.1964; Decree-Law No. 1110/70.

C. At the local level

The municipal authorities exercise law enforcement powers in matters of safety and hygiene.

D. At the international level

Brazil acceded to the juridical and administrative system proposed for the rivers of America by the Seventh Inter-American Conference, held at Montevideo in 1933, and to that brought into being by subsequent regional agreements (both are referred to under Argentina, Section XII, D). With the other Amazon basin countries Brazil has established the regional system described under Bolivia, Section XII, D.

The boundary treaty with Guyana opened the frontier river to shipping and fishing by both States, whose consent is required for the installation of any works likely to have an effect on its course such as canalization, irrigation and hydroelectric schemes 1/.

The treaty with Uruguay provides that the consent of both States is required for any installation for water use that is likely to result in an appreciable and enduring adverse effect on the regime of the river forming, or cutting across, the frontier 2/.

Together with Uruguay, moreover, Brazil is the other constituent member of the Joint Commission for the Development of the Merim Lagoon Basin (CLM). The terms of reference of this Commission include that of studying the development of the basin, planning, managing and contracting out common installations and services owned jointly, and on a parity basis, by the two countries 3/.

With Paraguay, Brazil has set up the Binational Itaipú Board, the constituent members of which are the respective State undertakers Electrobras and Ande. Its terms of reference concern the use of the water resources of the Paraná which are shared in that part of the river between the Guaira falls and the confluence with the Iguazú river 4/.

XIII. SPECIAL AND AUTONOMOUS WATER DEVELOPMENT AGENCIES

A. At the national level

Considerable public capital is laid out, where water is concerned, through the agency of decentralized boards. The three major bodies concerned are:

(i) The National Sanitation Works Department. This guides, supervises, plans, surveys, implements and provides official control over activities or matters having to do with the construction, modification and operation of hydraulic and sanitary installations. It also provides the additional works necessary for regulating water and improving the management of the resource. It promotes the rendering of services and the carrying out drainage/sanitation schemes in collaboration with the respective State authorities, municipal authorities and public and private agencies, and follows up enforcement of federal law in the matter of works and services, use of publicly owned water and contamination abatement 5/;

(ii) the National Department of Drought Control Works constructs faccolities designed to offset the effects of drought 6/;

1/ Exchange of Notes, of 27.X.1932, and 1.XI.1932, Art. 1, VI.

2/ Convention of Montevideo, of 20.XII.1933, Art. XX.

3/ Exchange of Notes, of 26.IV.1963, 5.VIII.1965 and 20.V.1974; Treaty of Brasilia, of 7.VII.1977.

4/ Treaty of Brasilia, of 26.IV.1973.

5/ Act No. 4089, of 13.II.1962, Section 2; Act No.5318, of 26.IX.1967, Sections 2, 3, and 10.

6/ Decree-Laws No. 8486, of 28.II.1945 and 9857, of 13.IX.1946, Art.1.

(iii) Centrais Eléctricas Brasileiras (Electrobras): studies, plans, finances, constructs and operates electricity generating stations and power lines either directly or through the agency of subsidiaries or associates 1/.

B. At the regional or basin level

On the basis of the former San Francisco Valley Commission, the Federal Government has set up the San Francisco Valley Superintendency. This is a corporate body with its own assets, being administratively and financially self-governing and having authority for the entire basin. Its principal objects are to promote the economic use of natural resources, the exploitation of investment opportunities in industry or agriculture, to plan or carry out services and regular works and to prescribe rules governing the use made of the San Francisco river and its tributaries 1).

The State of São Paulo has set up the Tieté Valley Services, the Paraíba Valley Services and the Ribeira Valley Services, all reporting to the Water and Electric Energy Department and responsible for developing plans, construction works, operating and maintaining public services, where those rivers are concerned, within the São Paulo region 3/. Subsequently it assigned to the Paraíba Valley Services the task of planning and carrying out regularizing works for that river and its tributaries, as well as works and services intended to promote the economic and social revival of that region, flood protection works, drainage, irrigation, the working of the land benefitting from the scheme and the works and services intended for its integrated use 4/.

C. At the user level

Book III of the Water Code prescribes rules governing hydroelectric generation, authorizes those interested in the joint regulation and use of water to form consortia and enjoins upon the authorities to proceed to their compulsory formation 5/. These provisions have not in fact been applied as yet.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

A. Government financial participation and reimbursement policies

The State provides financing for hydraulic installations by means of budget allocations and from special funds, such as:

(i) The Federal Electrification Fund, which finances installations for the production, transmission and distribution of electricity 6/;

(ii) the Sanitation Financing Fund, which puts up the money for surveys, laws and works for sanitation and irrigation 7/.

The State of São Paulo has set up the State Basic Sanitation Fund with a view to promoting and collaborating in drinking water supply and sewerage programs and research and surveys geared thereto 8/.

The State may recover its outlay on the rainwater drainage works which it installs in public squares and thoroughfares, and on drinking water supply and drainage systems,

1/ Decree No. 55.835, of 15. III. 1965, approving its Statutes, Arts. 4 and 49.

2/ Decree-Law No. 292, of 28.II.1967, Arts. 1 and 2.

3/ Act No. 1350, of 12.XII.1951, Section 4.

4/ Decree No. 43.358, of 1.VI.1964.

5/ Water Code, Art. 201

6/ Act No. 2308, of 31.VIII.1954.

7/ Decree No. 61.160, of 16.VIII.1967.

8/ Act No. 10.107, of 8.V.1968, Section 3.

drought and flood control works, sanitation and drainage systems, dams, port installations in general, and works for the regularization of watercourses and irrigation. For these it may levy a contribution for improvements on the owners of land whose value is enhanced by the works in question 1/.

B. Water rates and charges

The State also recovers its outlay on sanitation and hydroelectric schemes by levying a rate, which is the subject of detailed legislation. Several articles of the Water Code place upon the beneficiaries the obligation of contributing toward the financing and maintenance of specified works referred to in the course of the present study.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

The Water Code restricts rights to public water which were acquired by lawful title or thirty-year possession prior to its promulgation within the limits which the Code itself assigns to concessions 2/.

B. Modification, termination and re-allocation of water rights

Any use right in respect of public water may be withdrawn 3/.

The right to the use of public water in common with other persons may not be extinguished save by law 4/.

The right to any special use entailing any deviation of the water becomes extinguished by: 5/

- (i) abandonment;
- (ii) lapsing;
- (iii) redemption upon expiry of the first ten years following the completion of the relevant works. In this case the effective capital outlay is made good;
- (iv) expiry of the term of the concession;
- (v) withdrawal.

C. Water tribunals, courts and other judiciary water authorities

There are no water courts in Brazil. Persons concerned have recourse in any dispute with the authorities or with third parties to the ordinary courts for the defence of their rights to make use of public water and the beds and banks thereof 6/.

D. Penalties

In addition to the penalties prescribed by the Criminal Code, the Water Code punishes offences by imposing fines 7/ and declaring rights to be forfeit 8/.

1/ Decree-Law No. 1095, of 24.II.1967.

2/ Water Code, Art. 47.

3/ Ibid., Art. 67.

4/ Ibid., Art. 65.

5/ Ibid., Art. 66.

6/ Ibid., Art. 60.

7/ Ibid., Arts. 56 and 189

8/ Ibid., Art. 66(b).

CHILE

I. INTRODUCTION

Chile is that long and narrow-shaped country stretching from Peru to the southernmost tip of South America.

Most of the country's rivers flow down the western side of the Andes watershed into the Pacific Ocean. A few, however, flow out of the country, eventually to empty into the Atlantic or to form interior drainage systems. The frontier with Argentina traverses several lakes and glaciers.

The northern part of the country is arid desert, where rainfall is virtually non-existent. The Central Valley has a temperate climate, with wet winters and dry summers making irrigation necessary. This is the most densely populated and developed region. The amount of water committed even now demands rationalization of uses and gives rise to quality problems as well. To the south of the Bio-Bio river water is abundant and elevation facilitates harnessing for hydroelectric generation. Increased use for the two purposes mentioned should make for a reduction in Chile's food and fuel import needs.

Chile has an area of 741 767 km², and a population of 10 300 000, one third of whom live in the capital, Santiago.

The present territory of Chile was colonized by Spain and erected as a Capitanate-General. Self-government was obtained in 1810. Following a protracted war, an independent republic was declared. The last hundred years have seen wars waged with Bolivia and Peru, as well as with Spain.

II. LEGISLATION IN FORCE

The principal sources of water legislation are:

1. The National Constitution, which empowers the Legislative to declare a reserve on all water of public use and to expropriate privately owned water and incorporate it under the national domain (Art. 10, inserted by the amending Act of 20 January 1967);
2. the Water Code, approved in 1951, amended by Act No. 16.640 - The Agrarian Reform Act, of 28 July 1967, which enjoined upon the Executive to establish the basic text of the Code incorporating revisions. This was duly done with the promulgation of Decree No. 162, of 12 March 1969. Subsequently amendments introduced by Acts Nos. 17.625 and 17.280 were also incorporated 1/.
3. the Civil Code, of 14 December 1885, which prescribes rules governing the ownership of channels and streambeds, the juridical consequences of the natural action of water and civil servitudes (Arts. 597, 649-656, 820-824, 830, 839-841, 861-870, 885 and 361). Under this Code there was originally established the principle of riparian rights but these were abolished by later legislation.
4. the Criminal Code, which makes it an offence to contaminate water intended for drinking purposes (Arts. 316 and 317);

1/ Ed. Note: Subsequent to the preparation of this study the Government of Chile enacted a new Water Code on 13 August 1981. Extensive extracts of this Code were published in FAO Food and Agricultural Legislation, Vol. XXXI, No. 2.

5. the Public Health Code, approved by Decree No. 725, of 11 December 1967, which prescribes rules for the use of water in accordance with public health principles;
6. the General Electricity Supply Services Act, introduced by Decree with Force of Law No. 4, of 24 July 1959. This governs the use of water for hydroelectric generation purposes;
7. Act No. 3133, of 4 September 1916, which makes it obligatory to render harmless any residues from industrial establishments before discharging into any body of water;
8. Act No. 9006, of 1948, which prohibits the discharging of products or residues into water where so doing is prejudicial to health, crops or the soil 1/;
9. Act No. 14.536, of 20 January 1961, which establishes the definitive text of the Act on the provision of irrigation works by the State;
10. Decree with Force of Law No. 237, of 15 May 1931, which prescribes rules for the use and conservation of spa and mineral water.

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

The Water Code declares all waters of the national territory to be property of the nation and for the public use, and expropriates any water that was private up to the date of promulgation 2/.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

The Water Code prescribes generic rules governing the right to use water irrespective of the mode of acquisition of that right. The Code also prescribes, within this generic context, specific rules governing the grant (merced) of water, this being the right granted by the authorities whereby use may be made of water.

In what follows, consideration will be given to the right to use water, to the various modes of acquisition of that right and, lastly, to the above-mentioned grant of water.

A. The water use right

This is an administrative right in rem whereby the holder is authorized to make use of water subject to the rules and conditions laid down by the Code 3/. It may not be granted separately from the property or industrial undertaking served by the water in question; it is an implied accessory right to use the means necessary and to construct works for its exercise 4/. A water use right is either permanent or contingent according to whether or not it authorizes the use of the water even where the source of supply falls short of satisfying all established rights 5/. The volume covered by the grant is governed by the rate consonant with rational and beneficial use as determined by the President of the Republic 6/.

The authorities may assign a different source of supply provided the quantity or quality of the water to which the holder is entitled are not affected 7/.

1/ Act No. 9006 of 1948, Sections 11 and 12.

2/ Water Code, Arts. 9 and 10.

3/ Ibid., Art. 11.

4/ Ibid., Arts. 12-14.

5/ Ibid., Arts. 17-20.

6/ Ibid., Arts. 26 and 27.

7/ Ibid., Art. 24.

A water use right may be extinguished in the following circumstances:

- (i) Withdrawal, in order to assign the water for drinking or other domestic needs or when the economic development of a given area so demands. Compensation is payable in these cases 1/;
- (ii) lapsing, so declared following failure on the part of the holder to make use of the water for two years running, the cessation of the purpose served by the use, any use other than that contemplated in the grant, prohibited transfer to others, and failure to carry out mandatory works within the appointed time limit. In such cases no compensation whatsoever is payable 2/;
- (iii) the ordering of a rational and beneficial use rate lower than that granted in the use right. In this case the right is curtailed to take account of the difference 3/;
- (iv) declaration of an area within which the rational use of water is made mandatory. The declaratory decree extinguishes all existing use rights in such areas 4/;
- (v) declaration of a shortage area, by decision of the President of the Republic in cases of freak drought, when provision is also made for the sharing out of the available supply 5/.

B. Mode of acquisition

Use rights are acquired as follows:

- (i) By express provision of law in terms of a right accessory to ownership rights, thus:
 1. The owner of land may make use of rainwater falling or collecting there or flowing along any public thoroughfare 6/. He may sink wells in order to obtain water for drinking and other domestic purposes 7/ and may use water surplus to the irrigation needs of any neighbouring property provided that water flows by natural means onto his own 8/;
 2. any owner of water expropriated under Act No. 16.640, the Land Reform Act, may nevertheless continue to use that water 9/;
 3. a mine owner may use water encountered in his mining operations to the extent needed for these 10/;
- (ii) by grant of the appropriate authority 11/.

Water use rights can never be acquired by prescription 12/.

1/ Water Code, Arts. 28, 32 and 34.

2/ Ibid., Art. 30.

3/ Ibid., Art. 29.

4/ Ibid., Art. 35.

5/ Ibid., Art. 332.

6/ Ibid., Arts. 15 and 16.

7/ Ibid., Art. 65.

8/ Ibid., Art. 87.

9/ Ibid., Art. 10.

10/Ibid., Art. 67.

11/ Ibid., Art. 37.

12/ Ibid., Art. 9.

C. Characteristics of concessions

Concessions may be obtained:

- (i) From the Waters Department only 1/;
- (ii) upon application and by public procedure 2/ ;
- (iii) for a specific use. If it is intended to make use of the water for a different purpose than the original one, a fresh concession is required 3/;
- (iv) for permanent or contingent, continuous, discontinuous use or use under a rota system 4/;
- (v) accompanied by the entitlement to constitute servitudes and to use public land to the extent necessary for the exercise of these rights 5/;
- (vi) in terms of metric units per unit of time, the purpose, volume and water quality to be specified 6/;

Concessions may be extinguished in the same circumstances as those listed under Section IV, A, and upon expiry of the term for which they were made 7/. The same principles as those described in that section apply as a general rule here also.

V. ORDER OF PRIORITIES

The following use priorities are observed with concessions:

1. Drinking and drinking water supply to population centres and industrial activities;
2. domestic uses and sanitation;
3. other.

Within the respective classes preference will be accorded to activities having the greater importance and usefulness. Other things being equal, priority in time will prevail 8/.

The discoverer of groundwater will enjoy preference, provided he is otherwise authorized for receiving the concession 9/.

Concession holders in the provinces of Antofagasta y Tarapacá are required to surrender water without charge for public supply purposes and for those of drinking and for domestic requirements 10/.

1/ Water Code, Art. 37.

2/ Ibid., Arts. 257-267.

3/ Ibid., Art. 39.

4/ Ibid., Arts. 38 and 43.

5/ Ibid., Arts. 40 and 41.

6/ Ibid., Art. 44.

7/ Ibid., Arts. 51, 55 and 59.

8/ Ibid., Art. 42.

9/ Ibid., Arts. 64, 66 and 278.

10/ Ibid., Art. 70 and 71.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

Grants may be made to municipalities and to private persons for domestic and public sanitation purposes 1/. When grants are made to private persons for public supply purposes the term may not exceed 36 years 2/.

No building or transformation of a population centre may be put in hand until the approval of the National Department of Health has been obtained for the water supply and sewerage services, such approval also being required before any dwelling there may be occupied.

B. Municipal uses

No specific provision is made in this context, so that the rules described in the previous subsection will apply.

C. Agricultural uses

The Water Code makes provision only for irrigation. Grants for irrigation purposes authorize the drawing of water also for drinking and livestock watering but do not contemplate the latter use in any distinct fashion. They are made to landowners able to justify the need, and subject to rational and beneficial use principles 3/.

D. Fishing

While concessions for fisheries are not governed by any separate set of rules, they may be made along the lines indicated in Section III 4/ and subject to the conditions set out under subsection F (Industrial and mining uses).

E. Hydropower

The National Electricity Supply Company (ENDESA) installs and operates hydroelectric works. The Water Code provides for concessions to private persons for a term equal to that for electric generation purposes, provided there is no diminution in flow or any water hammer effect to cause prejudice to those using irrigation or to interfere with the regularity of the flow for this purpose 5/.

F. Industrial and mining uses

The concession for industrial and mining uses has the following characteristics: The authorized volume will be that necessary for the industry or factory or other establishment concerned. The water must be returned in a condition as prescribed in the concession. The latter may not operate to the detriment of third parties. The duration is as prescribed in the concession. No harm must accrue to irrigation 6/.

Again, the law allows any holder of a mining concession to make use of water encountered in his work or deriving from his underground operations 7/ and to constitute

1/ Water Code, Art. 50.

2/ Ibid., Art.51.

3/ Ibid., Art. 53.

4/ Ibid., Arts. 56 ff.

5/ Ibid., Arts. 55 and 60.

6/ Ibid., Arts. 56-60.

7/ Ibid., Art. 54; Mining Code, Art. 85.

a servitude in respect of the overlying land and immediate surroundings for providing drinking water for his workers and his animals, for powering machinery and for the winning of the minerals 1/.

G. Transport

Since water use for transport purposes is not the subject of specific rules, those described in the first paragraph of the previous subsection apply.

H. Medicinal and thermal uses

Here general principles are applied together with the provisions of special laws governing these matters.

I. Recreational uses

The installation, extension or other modification of bathing resorts, swimming pools and public and private baths require the prior authorization of, and inspection by, the National Health Service 2/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection

The Water Code enjoins upon the respective canal users' associations to provide for the maintenance and clearing of canals and conduits under their jurisdiction 3/. It also prohibits the erection of stockades or walls or the carrying out of any operation deviating the flow in such a way that the water floods over onto another's land and accumulates or otherwise causes excess humidity there. If these events arise, the aggrieved party may demand the removal of the offending structure and compensation for any loss sustained 4/.

Owners who have suffered loss or damage due to any natural change of course of water on another's land may also require the owner concerned to remove or allow the removal of whatever gave rise to the change of course 5/.

B. Drainage

Whenever due to negligence on the part of the owner the water he is using overflows from his land, the aggrieved party may claim compensation. In repeated cases of the kind a fine may also be imposed 6/.

The National Irrigation Organization is empowered to install works for the reclamation, drainage and drying out of land otherwise suitable for agricultural use which is marshy or is subject to recurrent flooding. The beneficiaries of these operations are required to defray the relevant installation and operation costs 7/.

The servitude of drainage may be constituted as an accessory charge to that of aqueduct 8/ for the evacuation of excess water from land and mines and for drying out

1/ Mining Code, Art. 88.

2/ Public Health Code, Art. 76.

3/ Water Code, Arts. 141 (2) and 181 (6).

4/ Ibid., Art. 241.

5/ Ibid., Art. 244.

6/ Ibid., Art. 245.

7/ Ibid., Art. 328.

8/ Ibid., Art. 193.

swamps or naturally occurring seepage effects 1/. Conduits must not be the cause of seepage, flooding or overflowing damaging the servient land or of waterlogging or of the accumulation of waste 2/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

A. Waste and misuse of water

The authorities may require users of water obtained from naturally occurring sources to rebuild or repair privately owned works needed for the efficient use of water and to standardize offtakes and channels 3/. They may also require any user to change his source of supply 4/.

Waste avoidance may also be the subject of legislation in terms of an Order of the President of the Republic prescribing, reviewing or modifying rates deemed to reflect a rational and beneficial use of the resource (which is the criterion governing the right itself) 5/. Even so, this right yields to drinking water needs, domestic uses and the requirements of industry in the area 6/. The user may also be required to install metering devices for the water that he draws 7/.

B. Recycling and re-use of water

It is prohibited to use water from sewerage systems, drainage or ditches and any water declared contaminated by the authorities for raising shellfish or for growing vegetables or fruit normally consumed raw or growing close to the ground. However, these waters may be used under prior authorization by the National Health Service, prescribing the degree of cleansing and disinfection necessary for the respective types of crop 8/.

Re-use of water is also covered by the rules described in subsection C, below.

C. Health and environment protection

Industrial establishments must not discharge products or residues prejudicial to the use of water for the purposes of drinking or irrigation, to health or plants, or such as to produce adverse effects on agricultural land 9/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

A. Exploration and exploitation licences

Any person may prospect for groundwater on his own land, but only the State may do so on another's land 10/. A permit must be obtained for prospecting upon land of national property. This will confer exclusive rights for the purpose over an area of up to 5 000 ha and for a term of up to two years. Applications for such a permit must indicate the location and nature of the land, the intended use for the water, existing use rights and drilling plans 11/. The permit is sufficient for working groundwater on the holder's own land but a servitude may need to be constituted in the case of doing so on another's land 12/.

1/ Water Code, Art. 205.

2/ Ibid., Art. 194.

3/ Ibid., Art. 23.

4/ Ibid., Art. 24.

5/ Ibid., Arts. 25-27 and 29.

6/ Ibid., Art. 28

7/ Ibid., Art. 46.7/

8/ Public Health Code, Art. 75.

9/ Acts Nos. 3133, of 4.IX.1916 and 9006 of 9.X.1948, Sections 11 and 12; Public Health Code, Art. 73.

10/ Water Code, Arts. 62 and 66.

11/ Ibid., Arts. 268 ff.

12/ Ibid., Arts. 272, 275, 276, 260.

The permit holder enjoys priority, for six months from the date of issue, for applying for the concession in respect of the groundwater thus brought to the surface in the area concerned 1/.

Prospecting must commence within six months under penalty of the permit lapsing, which also happens if any of the conditions specified in the grant are not observed 2/.

B. Groundwater resources protection measures

The authorities may prescribe rules governing, and even prohibit, prospection for groundwater; they may impose fines on any person sinking a well illicitly, halt the relevant operations and stop up the well 3/.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

A. Waterworks construction

There is no general legislation on hydraulic installations but these are covered in the Water Code when it deals with the respective uses and activities.

Any user drawing water from natural watercourses may be required to repair, or install, privately owned works that are necessary for improving the use made of the water and to standardize his offtakes and canals 4/.

The Irrigation Department is responsible for the installation and operation of irrigation and drainage facilities provided out of the public purse and for the protection works for these 5/. Whenever the facilities described here are provided, irrigation is mandatory 6/.

B. Waterworks protection measures

Permission of the authorities is required for mining prospection at dam sites and in canals and other irrigation works 7/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

A. In the case of beneficial uses of water

The President of the Republic may declare areas where water use is to be rationalized, with the effect that no use rights will be renewed there 8/.

B. Other cases

At times of freak drought the authorities may declare shortage areas as a prior step to their ordering a redistribution of the available water 9/.

1/ Water Code, Art. 64.

2/ Ibid., Art. 277.

3/ Ibid., Art. 61.

4/ Ibid., Art. 23.

5/ Ibid., Art. 301.

6/ Ibid., Arts. 316 ff.

7/ Ibid., Art. 236 and Mining Code, Art. 17.

8/ Ibid., Arts. 35 and 36.

9/ Ibid., Art. 332.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The President of the Republic, the ministers and ministry agencies have the following powers:

- (i) President of the Republic. The President takes decisions assigned to him by the Water Code and by legislation supplementary to it;
- (ii) Ministry of Works and Transport. This ministry, acting through its Public Works Department, provides river defences and sanitation systems, harbour works and irrigation and drainage works.

The National Irrigation Company instituted by the Water Code to plan, survey, construct and operate agricultural irrigation and drainage works provided out of the public purse has not been organized as yet 1/, so that its terms of reference will be carried out by the Irrigation Department, which reports to the Public Works Department.

On the other hand, a Waters Department has been so organized. This reports to the above ministry and follows up Water Code enforcement, implements water policy, studies, plans, maintains and develops the country's water resources, and maintains and operates the national hydrometrology service 2/;

- (iii) National Irrigation Commission. This commission plans, studies and develops integrated irrigation projects; supervises, coordinates and supplements the activities of the public and private agencies dealing with the construction, arrangement and maintenance of irrigation works, conducts specific surveys and performs other advisory functions and exercises authority in this field 3/.
- (iv) National Health Service. This is responsible for the elimination or control of all environmental factors, elements or agents that affect health, safety and welfare and, especially, for granting the prior authorization required for the provision of drinking water supply services and those of sewerage, drainage and treatment and final disposal of the products involved. It also supervises the drinking water supplies and the decontamination of waste water 4/;
- (v) Chilean Air Force. The Telecommunications and Meteorology Service provides weather intelligence;
- (vi) Chilean Army. The Hydrographic Institute conducts observations, surveys and research in the field of the hydrography.

B. At the local level

- (i) Local administrative authorities and institutions with competence in matters having to do with water rights.

The governors of the respective departments receive and process applications for water use rights 5/;

1/ Water Code, Arts. 229 ff.

2/ Ibid., Arts. 287 ff.

3/ Decree-Law No. 1172, of 4.IX.1975.

4/ Water Code, Arts. 248-255

5/ Public Health Code, Arts. 9 (v) and 69-76.

(ii) Users' associations

Users provide for the regulation of water use among themselves through the agency of 1/:

1. Supervisory Boards. These have corporate status and exist to administer and share out the water obtained from national watercourses over which the members of the association hold rights. Also to operate and provide for the maintenance of joint supply works, to build new works and improve existing ones 2/. Membership consists of all persons making use of water from one and the same hydrographic basin, including canal users' associations and water communities 3/. The jurisdiction of these supervisory boards finishes at the offtake on the artificial channels led off from the relevant natural watercourse. At that point commences the authority of the canal users' association or the water communities. These two types of body are discussed next.
2. Canal users' associations. These are corporate bodies formed for the purpose of obtaining water from the main source of supply, arranging its distribution among members, installing, working, maintaining and improving works for the withdrawal and conveyance of water and anything necessary for joint use purposes, and performing any act and entering into any contract in pursuance of the object of the association 4/. Their membership consists of all users availing themselves of one and the same man-made watercourse. The consent of those holding majority rights for water use is sufficient for their constitution 5/
3. Water communities. The Water Code declares these to be constituted by the mere fact that two or more persons are using water supplied via one and the same man-made conduit, irrespective of whether there is an agreement among the members as to the use of the resource. The communities come under the Code's rules in their regard and, secondarily, under those applying to canal users' associations, though the persons concerned may agree among themselves on other procedures 6/.

C. At the international level

(i) International agreements

The treaties with Argentina establish a limit in the high points constituting the division between watersheds. Nevertheless, several rivers flow through one of the two countries to continue their course in the other.

(ii) Commissions or Boards relative to international rivers

The Comisión de Integración Física Argentino-Chilena operates as described in the chapter on the former country, Section XII, D.

1/ Water Code, Art. 22.

2/ Ibid.

3/ Ibid., Arts. 163 and 167.

4/ Ibid., Art. 88.

5/ Ibid., Art. 89.

6/ Ibid., Arts. 152 ff.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

A. At the national level

The National Electricity Supply Services Company (ENDESA) is responsible for building and operating hydroelectric schemes.

As stated in Section XII, A (ii), the National Irrigation Company provided for in the Water Code has not yet been brought into being.

B. At the user level

The users' associations referred to in Section XII, B also build and operate waterworks

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

Holders of water use rights for irrigation pay an annual rate 1/.

The State ensures that beneficiaries of hydraulic installations pay back the money spent on their installation and maintenance, recovering some of the capital outlay by means of a rate for the hydroelectricity and drinking water supply 2/.

Beneficiaries pay back the cost of the works by means of an ongoing annual contribution which may be raised commensurately with the improvements thus brought about and payable pro rata with the volume of water to which they are entitled.

The members of a canal users' association defray expenditures incurred for their benefit, such as for the construction, maintenance and improvement of works, pro rata with their water rights 3/.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

The owner of water prior to the introduction of the Code, which expropriated him tout court, is entitled to continue making use of the resource under the present legislation without needing a fresh concession, and to receive compensation for the entire loss or damage due to the change 4/. There are other use rights anterior to the Code, those that were recognized by judicial award, those granted by the competent authority or assigned by the Civil Code to certain landowners who were operational with appropriate works at the time the Code was introduced, and those acquired by prescriptive means. All these rights are governed by rules contained in the Code currently in force 5/.

B. Modification, termination and re-allocation of water rights

Water rights may be modified, redistributed and even extinguished as described in section IV, A (iii), (iv) and (v).

1/ Decree-Law No. 1172, of 4.IX.1975, Art. 15.

2/ Water Code, Art. 318; D.-L. No. 1172, Art. 14.

3/ Water Code, Art. 115; D.-L. No. 1172, Art. 16.

4/ Water Code, Arts. 10, 32 ff.

5/ Ibid., Art. 330.

C. Water tribunals, courts and other judiciary water authorities

The governing board of any canal users' association arbitrates in matters arising between members and between these and the association where the sharing of water or the exercise of rights held by members are concerned 1/. Arbitral awards may be appealed to the ordinary courts 2/. The latter are also competent for all matters affecting water communities 3^/ and the constitution of canal users' associations 4/.

Certain decisions of the Water Department as authority administering the Code may be appealed to the territorially competent Court of Appeal 5/.

There are no water courts in Chile.

D. Penalties

In addition to the penalties contemplated in the Criminal Code, the Water Code institutes a system of law enforcement by means of fines. The most common penalty is the fine, the amount of which is indexed to the conventional living wage 6/. In special cases a person's right to use water may be suspended 7/ or withdrawn altogether 8/.

1/ Water Code, Arts. 144 ff.

2/ Ibid., Art. 147.

3/ Ibid., Arts. 157 ff.

4/ Ibid., Arts. 89 ff.

5/ Ibid., Art. 30.

6/ Ibid., Arts. 46, 61, 113, 118, 232 and 283.

7/ Ibid., Art. 23.

8/ Ibid., Arts. 12, 30, 31, 39, 54, 257, 259 and 263.

COLOMBIA

I. INTRODUCTION

Colombia is situated in the north-eastern corner of the South American continent. Its watercourses flow into the Pacific Ocean, the Caribbean and the Orinoco and Amazon basins.

The coastal region is humid and low lying, fertile, and tropical. The centre of the country is mountainous and of volcanic structure, being crossed by three branches of the Andes cordillera, which converge at Pasto. Between the respective pairs flow the country's longest rivers, the Magdalena and the Cauca. The former is navigable upstream from its estuary in the Caribbean, while the latter river, which is its tributary, is partly so.

The western plains region is one of rough grazing and, in part, dense tropical vegetation, thanks to the heavy rainfall there. The country generally is rainy and humid, with an annual rainfall of 6 000 mm on the Pacific coast and 600 mm in driest parts - in the Guajira peninsula. Despite this, there are some 300 000 ha under irrigation. Only a fraction of the hydroelectric potential is exploited. Industrial waste, that is beginning to accumulate in the vicinity of the major cities, is causing problems where the quality of the receiving bodies of water is concerned.

Colombia is by tradition a farming, mining and oil producing country.

The population estimates for late 1968 speak of approximately 26 500 000 inhabitants. These occupy a total land area of 1 138 914 km² 1/.

What is now Colombia was colonized by the Spanish Crown, against which armed risings were made from the late XVIII century on. In 1810 a home rule government was installed and, in 1813, the country declared its independence, though this cost hard-fought struggles to consolidate. With Ecuador and Venezuela the country formerly constituted Greater Colombia, which split up in 1830. Early in the present century, Panama broke away, to declare itself an independent state.

II. LEGISLATION IN FORCE

The principle sources of legislation regarding water are:

1. The Constitution, voted in 1886, currently in force as amended in 1947 and 1957 and with the further amendments introduced by Legislative Decrees Nos. 247, of 4.X.1957 and 25, of 9.X.1957. While it contains no rules specific to water, the Constitution represents a basic statement of Colombia's legal system;
2. the National Code of Renewable Natural Resources and Environment Protection, approved by Decree No. 2811, of 18.XII.1974. This prescribes rules for all matters having to do with water and, in general, with renewable natural resources and the environment 2/;
3. the Civil Code, of 26.V.1873. This prescribes rules governing the ownership of water (Arts. 677 and 678), lateral canals (Art. 683), pre-existing rights (Art. 684), fishing rights (Arts. 690 and 691), alluvion (Arts. 719-723) and servitudes (Arts. 891-898). A number of the provisions here referred to have been replaced by those of the Code named under 2, above;

1/ Source: United Nations, Map 2753 (S), May 1974.

2/ In the notes, this Code is abbreviated "NCRNR".

4. the Criminal Code, approved on 24.IV.1936 by Act No. 95. This prescribes penalties for contamination (envenenamiento) (Art. 265), the unlawful appropriation of water (Art. 423), and damage to or destruction of hydraulic installations and causing floods (Art. 254);
5. the Mining Code, approved by Decree No. 1779, of 8.VI.1954. This places restrictions on mining prospection and working in rivers which carry continuous shipping traffic and in areas where water resources are exploited (Art. 10(c) and (d), on the working of alluvion (Art. 32), on prospection for minerals within a protection radius of canals, aqueducts and dams, water deposits and other hydraulic installations (Art. 34 (c)), and on mining uses (Arts. 172-184) and servitudes (Arts. 191 and 193);
6. Act No. 113, of 21.XI.1928, prescribing rules governing hydroelectric schemes (the Electricity Act) (Sections 3-7, 9 and 11);
7. Legislative Decree No. 3110, of 22.X.1954, and Act No. 25, of 25.V.1959, together with Decree No. 1707, of 18.VI.1960, setting up and organizing the Valle del Cauca Regional Self-Governing Corporation;
8. the Act of 31.I.1961, to set up the Regional Self-Governing Corporation of the Sabana de Bogotá and the Ubaté and Chiquinquirá Valleys.

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

All water is under public ownership, may not be alienated and is immune from prescription - this, however, with due regard to private rights acquired under law 1/.

The following are also assets belonging to the State which may not be alienated or made subject to prescription:

- The natural beds of watercourses;
- beds of natural accumulations of water;
- the seashore, and the shores of rivers and lakes;
- a 30 metre-wide strip parallel to the permanent channel or bed of rivers and lakes;
- areas occupied by snowfall and the beds of glaciers;
- groundwater 2/.

In addition the State reserves to itself, though with due regard to third-party acquired rights, ownership of:

- sloping land 3/;
- energy which may be generated through the concomitance of water and sloping land, even where the water in question is under a concession or is given over to other uses 4/;
- geothermal resources 5/.

1/ NCRNR., Art. 80.

2/ Ibid., Art.83.

3/ Ibid., Art.168.

4/ Ibid., Art.169.

5/ Ibid., Art.174.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

Water may be used:

(i) Under law.

Every person has the right to use water under public ownership for the needs of his family and his livestock, provided no loss or damage is caused to third parties 1/. The use in question must not entail the installation of offtakes or the use of machinery or equipment; nor must it constitute a retention or deviation of a watercourse, or cause damage to the bed or the banks, or cause a retention or contamination of the water in such a way that others cannot use it 2/. Privately owned water may be used only for domestic purposes 3/.

The owner, or occupier, of land may make use of water falling thereon or collecting there and may for this purpose construct, within the property, suitable works for conserving and storing the water, provided again that third parties are not aggrieved thereby 4/.

The exercise of any rights held under a title anterior to the Code must take into account their social function 5/.

The holder of a mining concession is entitled to use the water encountered in his underground operations 6/;

(ii) under permit 7/;

(iii) under concession 8/;

(iv) in association 9/;

(v) under authorization 10/.

B. Water use authorizations, permits or concessions

The Code requires that authorization be obtained for:

(i) Transferring water or using services deriving from a basin, such as the supply of electricity from a source of water occurring outside that basin 11/.

(ii) occupying or working beaches and beds of bodies of water (see C, below).

It is also possible to obtain an exclusive permit for using a specified portion of water 12/ for a period of up to ten years 13/.

1/ NCRNR, Art. 86, first part.

2/ Ibid., Art. 86, (end).

3/ Ibid., Art. 87.

4/ Ibid., Art. 148.

5/ Ibid., Art. 43.

6/ Mining Code, Art. 180.

7/ NCRNR, Arts. 51, 55 ff.

8/ Ibid., Arts. 51, 59 ff., and 88 ff.

9/ Ibid., Art.51.

10/ Ibid., Arts. 315, 99, 100 and 102.

11/ Ibid., Art. 315.

12/ Ibid., Arts. 54 and 58.

13/ Ibid., Art. 55.

A concession has the following characteristics:

(i) It may be applied for by the owner or occupier of any land or industrial undertaking or even by a tenant 1/;

(ii) the grant is conditional on its being entered in the appropriate register 2/, on approval of the hydraulic installations needed for the service governed by this concession 3/, on the availability of the water and subject to the needs of the use covered by the concession 4/, on the conditions imposed, in the first place, for the protection of the water and the attainment of the objectives of public utility and social interest governing the use in question 5/, on any amendments which the authorities may introduce for special reasons or public advantage 6/ and on the general regulations governing the distribution of water from the watercourse or the offtake whenever these are prescribed 7/;

(iii) the term is computed in the light of the nature and duration of the economic activity authorized under it and of the need for granting the concession for sufficient time to ensure that the working will be economically justified and socially beneficial 8/;

(iv) it may be made over to third parties entirely or in part subject to the consent of the authorities 9/.

C. Working and occupation of beds and beaches

Beds of watercourses may be occupied freely in the same circumstances as those contemplated for the use of water (see subsection A (i), above).

In order to work any material that is washed down in channels, beds or watercourses or, again encountered in impounded water, a permit is required. This will be granted by the Institute for the Development of Renewable Natural Resources (INDERENA) 10/. Where the extraction of such material is for the purpose of public works carried out by official bodies, an authorization is sufficient 11/. An authorization is also necessary for carrying out works covered by prospection or working concessions 12/ and for installing works in watercourses or bodies of water 13/.

Beaches may be occupied temporarily only for subsistence fishing purposes, and permanently for shipping needs 14/.

V. ORDER OF PRIORITIES

Priorities are determined on a regional basis in the light of ecological, economic and social considerations 15/, allowance being made for the need for constituting

1/ NCRNR, Art. 96.

2/ Ibid., Art. 97(a).

3/ Ibid., Art. 97(b).

4/ Ibid., Arts. 88 and 91.

5/ Ibid., Art. 92.

6/ Ibid., Art. 92 (end).

7/ Ibid., Art. 93.

8/ Ibid., Art. 60.

9/ Ibid., Art. 95.

10/ Ibid., Art. 99; Decree-Law No. 2420/68.

11/ NCRNR, Art. 99, second proviso.

12/ Ibid., Art. 100.

13/ Ibid., Art. 102.

14/ Ibid., Art. 104.

15/ Ibid., Art. 49.

reserves, the desirability of conserving the environment, the economic and social costs and benefits of any project, and considerations of subsistence and the economic and social development of the population of the region concerned 1/.

For the requirements of a mine any water may be taken which the owner of it is not using for his land, compensation being payable in advance 2/. However, if the water in question is indispensable for any land or establishment, it must be expropriated 3/.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

Like any other constituent part of the environment or renewable natural resources, water must be made use of in an efficient manner so that the maximum gain may accrue compatible with the general interest of the community and with the principles enshrined in the National Code of Renewable Natural Resources and Environment Protection and with the principles of environment protection, in such a way that no interference shall occur with any of those resources or with the rights of third parties. The use must proceed in a coordinated fashion and conform with the priorities determined by the authorities and within limits designed to ensure that the resources will not be depleted or be seriously impaired 4/. The following obligations also apply 5/:

- (i) Water must be used in an efficient and economic manner, at the place and for the purpose contemplated in the concession;
- (ii) only water covered by the concession may be used;
- (iii) installations and waterworks must be constructed and maintained in a suitable condition;
- (iv) care must be taken that the water drawn from a watercourse or body of water shall not cause flooding or overflow the containing works;
- (v) the beneficiary must contribute to the maintenance of hydraulic structures, inspection roads and other commonly held works and installations;
- (vi) the beneficiary must permit those concerned to carry out warden or inspector duty and must furnish information on the use that he makes of the water.

The respective uses of water are subject to the following rules:

A. Domestic and household uses

Use may be made of publicly-owned water for primary necessities of the individual and his family provided third parties are not aggrieved thereby, or offtakes installed or machinery or equipment used. The beneficiary in this case must not alter the course of the water, cause damage to the bed or the banks, or retain or contaminate the water in such a way that it can no longer be used by others 6/.

B. Municipal uses

There are no special rules governing municipal uses.

1/ NCRNR, Art. 49.

2/ Mining Code, Art. 173.

3/ Ibid.

4/ NCRNR, Art. 9.

5/ Ibid., Art. 133.

6/ Ibid., Arts. 86 and 87.

C. Agricultural uses

There are no specific rules governing agricultural use.

D. Fishing

Organically conceived rules governing fisheries are to be found in Title I of the National Code of Renewable Natural Resources and Environment Protection. This Code allows the free practice of subsistence fishing but all other fishery activities are subject to permit 1/, and to the condition that no impediment is caused to shipping or to the natural course of the water 2/, that no explosives, poisons, or stunning or unauthorized instruments are resorted to, that no drying out or lowering or other variation of the level of the water occurs 3/, that no substances likely to cause damage to aquatic life or to hatcheries shall be discharged into the water, and that the vegetation providing a refuge or subsistence for aquatic species, or the natural shelters for the latter shall not be destroyed 4/.

Beaches may be freely occupied for the purposes of subsistence fishing 5/.

E. Hydropower

The Natural Resources Code provides that the rules governing water concessions shall apply to the use of water and of sloping land for hydroelectric generation purposes 6/.

The right to use geothermal water is granted together with the concession for working the source 7/. The concession holder is required to take all necessary measures to prevent the water and steam deriving from geothermal sources having a contaminating effect 8/.

F. Industrial and mining uses

No specific rules are given for the industrial use of water. However, the rules referred to in Section VIII, below, deal mainly with the harmful effects of industrial activities on water and the environment.

On the other hand, mining use is regulated in detail by the Mining Code, under which concession holders are granted the right to make use of any water necessary in order to provide motive force or for consumption by their staff and the working and processing of ores 9/, and of any water deriving from operations underground 10/. The water in question must be returned to the source. However, the authorities may waive this obligation 11/.

The priority enjoyed by mining uses vis-à-vis other uses was dealt with in Section V.

1/ NCRNR, Art.275.

2/ Ibid., Art.277.

3/ Ibid., Art.282.

4/ Ibid., Art.283.

5/ Ibid., Art.104.

6/ Ibid., Art.171.

7/ Ibid., Art. 176

8/ Ibid., Art.171.

9/ Mining Code, Art.172.

10/ Ibid., Art. 180.

11/ Ibid., Art. 172.

Among the various mining uses of water, priority will be accorded to the person availing himself thereof without violence or fraud and, second to this consideration, to whoever makes his need known to the authorities 1/.

A person holding a mining concession may also require another to substitute the source of water that he is using whenever the water is essential for his mine or may demand the use of any water that becomes available when the other concession holder suspends operations 2/. Where the use here referred to renders the water unfit for continued use by a population centre, public establishment or agricultural or industrial undertaking, the mine concession holder is obliged to provide all these users with water of adequate quality and quantity 3/.

The mining operation must leave in a clean state the channels into which it discharges waste - this in order to prevent any damming or overflowing of the water 4/.

On similar principles, the National Code of Renewable Natural Resources and Environment Protection expressly empowers the authorities to impose conditions on the use of water for the winning or treatment of ores in order to ensure that it is suitable for further use, on the purpose to which any water extracted in mine drainage is to be put, on the use of water in hydrocarbon prospecting and working, on the gradual installation of works for the protection and reclamation of the land and of reforestation in opencast mine working, on the site and the manner of formation of slag heaps, or mine tailings and other forms of waste, and on sites where ores are treated. The authorities may also impose precautions that must be taken in order to ensure that no oil spills or gas leaks shall cause harm to the aquatic environment 5/.

G. Transport

There are several special rules governing shipping. Under these it is possible to occupy beaches permanently 6/. In addition, the authorities may prescribe the places and procedures for washing out and the conditions governing the operation of vessels and vehicles transporting substances capable of causing damage to the environment 7/.

H. Medicinal and thermal uses

The National Code of Renewable Natural Resources and Environment Protection defines medicinal water as that which contains dissolved substances useful for medicinal purposes 8/. In addition, it reserves the ownership of mineral and thermal water to the Nation and prescribes that the use of the resource shall be subject to regulation 9/.

I. Recreational uses

Concession, or association arrangements, are prescribed if it is intended to establish tourist leisure or sports activities in connection with watercourses, lakes and other bodies of water under public ownership 10/.

1/ Mining Code, Arts. 174 and 175.

2/ Ibid., Arts. 176 and 178.

3/ Ibid., Art. 183.

4/ Ibid., Art. 184.

5/ NCRNR, Art. 39.

6/ Ibid., Art. 104.

7/ Ibid., Art. 39 (h).

8/ Ibid., Art. 79.

9/ Ibid., Art. 85.

10/ Ibid., Art. 103.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

The authorities are responsible for maintaining surveillance for the protection of basins against whatever may degrade or spoil them, in particular any sources of pollution, sedimentation or salination of watercourses or the soil 1/.

A. Flood control, overflow and bank protection

A permit is required if anyone proposes to alter the bed, regime or quality of water or otherwise affect its legitimate use 2/. Plans and specifications must be submitted by any person proposing to regularize the alignment of channels or provide bank protection, or prevent floods and other damage to riparian land 3/. At times of freak flooding or similar instances of force majeure, owners, occupiers and tenants of land, and users' associations may erect provisional works without prior permission but must notify the authority within six days of putting the operations in hand 4/.

Where rainwater or water surplus to irrigation causes flooding, the owners of the land concerned must allow the construction of any work necessary in order to canalize the water 5/.

B. Soil erosion and siltation

The principles referred to under Section A apply in connection with erosion and siltation. Specifically, the Code enjoins upon the authorities to prevent erosion and control and abate the damage caused thereby 6/, to be responsible for soil conservation in order to prevent and control erosion and to promote the conservation of the soil, groundwater and soil moisture content generally 7/.

It is prohibited to destroy the natural plant cover on banks protecting canals unless authorization is given. This will be accompanied by the obligation to replace that cover adequately and immediately 8/.

C. Drainage and sewerage

Where a concession is granted to use water it will contain an indication of the site to which surplus irrigation water must be conveyed in order for it to return to its original channel or for its use on other land 9/.

The obligation referred to in the last part of the preceding section is also designed to promote proper drainage.

D. Salination

See the opening paragraph of this present section VII.

E. Other harmful effects

The National Code of Renewable Natural Resources and Environment Protection makes mining prospection and working concessions affecting the channels and beds of rivers or

1/ NCRNR, Art. 314 (a), to be read with Art. 181 (a).

2/ Ibid., Art. 132.

3/ Ibid., Art. 123.

4/ Ibid., Art. 124.

5/ Ibid., Art. 176.

6/ Ibid., Art. 314 (c).

7/ Ibid., Art. 181.

8/ Ibid., Art. 186.

9/ Ibid., Art. 125.

lakes subject to prior approval by the authorities, who have conservation among their responsibilities 1/.

The Mining Code, too, prohibits the working of mines situated in areas that are necessary for water use or for the harnessing of water for energy production 2/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

A. Waste and misuse of water

Any use of water is subject to availability of the source and the needs for its use 3/.

In addition, it must comply with the special pre-conditions laid down for the protection of the water and for its appropriate exploitation and, in general, with the inherent purposes of public utility and social interest 4/.

The authorities, on their side, must provide for reduction in loss and extravagant use of water and for its most efficient use, and must organize the combined use of surface and groundwater and water from precipitation 5/.

B. Recycling and re-use of water

There are specific rules requiring that water be returned in such a way that it can be put to further use 6/.

C. Health protection

This subject is dealt with under the following subsection on contamination.

D. Pollution

It is the responsibility of the State to guarantee the quality of water for human consumption. Accordingly it classifies water and determines conditions governing its collection, supply, conduiting and quality and provides for the elimination of nightsoil, the discharging of residues, garbage and other waste into receiving bodies of water, and regulates the use of sewage and maintains control over sewage likely to become a source of pollution 7/. Provision is also made concerning thermal pollution in the obligation placed upon industrial establishments to treat their effluents which might have a compromising effect on water temperature 8/.

The authorities may prohibit or make subject to conditions any discharging of sewage or waste from industrial or domestic use into specified receiving bodies of water 9/ or the carrying on of fishing, sporting and similar activities there 10/.

Those industrial establishments which cannot guarantee that their effluents will not impair the quality of the receiving bodies of water may set up their plant only in

1/ NCRNR, Art. 100.

2/ Mining Code, Art. 10 (d).

3/ NCRNR, Art. 89.

4/ Ibid., Art. 92.

5/ Ibid., Art. 314 (b) and (i).

6/ Ibid., Arts. 39 and others.

7/ Ibid., Art. 134.

8/ Ibid., Art. 136.

9/ Ibid., Art. 137.

10/ Ibid., Art. 143.

places determined by the authorities 1/. Industrial effluents may only be discharged into the public sewerage system in those cases and subject to the conditions prescribed by the authorities. In no event may these effluents or those of domestic origin be discharged into the rainwater drainage system 2/.

Mine working must not lead to a pollution of water necessary for any population centre, public establishment or agricultural or industrial undertaking 3/.

The Code expressly prohibits the discharge into any permanent or temporary body of water any products, substances or waste which may cause damage to aquatic life in general and to hatcheries in particular 4/.

E. Environmental protection

In order to carry out works, install industrial plant or engage in any activity likely to cause serious impediment to renewable natural resources a licence is required from the authorities. This will be conditional upon a prior ecological and environmental assessment taking into consideration physical, economic and social factors with a view to determining the impact that the works may have within the region concerned 5/.

Whenever the works or activities here referred to are likely to have international consequences where natural resources and other components of the environment are concerned, the views of the Ministry of Foreign Affairs must be sought 6/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

A. Exploration and exploitation licenses

Use may be made of groundwater underlying the land belonging to a third party for domestic needs or for livestock watering under a concession granted if the applicant has no water on his own land at a reasonable depth, and provided the rules of the Code are not contravened and, again, provided the owner of the water is not deprived of the water that he needs for his holding, he is using already or undertakes to use subject to any conditions that may be laid down 7/.

B. Groundwater resources protection measures

Whenever groundwater is in danger of becoming contaminated, of drying up or of gradual depletion, there will be a permanent or temporary suspension of the granting of concessions within the basin or area, and existing concessions may be declared to have lapsed or be limited in their exercise 8/. The water will be extracted in such a way that no surpluses arise 9/.

1/ NCRNR, Art. 141.

2/ Ibid., Art. 142.

3/ Ibid., Art. 147.

4/ Ibid., Art. 283 (b).

5/ Ibid., Art. 28.

6/ Ibid., Art. 29.

7/ Ibid., Art. 151.

8/ Ibid., Arts. 152 and 153.

9/ Ibid., Art. 154.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

A. Waterworks construction

Both the holder of a concession in respect of publicly owned water and any person making use of his own water require the prior approval of the plans for the works need in order to tap, control, convey, store or distribute the resource 1/. These works must be provided with apparatus and other items enabling one to ascertain and meter at any moment the amount of water so tapped and consumed 2/.

Exceptionally it is permitted to erect provisional works without prior permission if freak spates or similar happenings supervene. In these cases notification must be given within six days. Once the danger is past, orders may be given to restore any works destroyed or to construct new ones, the cost to be borne pro rata by those benefitting therefrom 3/.

The resolution assigning the concession must indicate the place to which any surplus water from irrigation must flow, the necessary conduits to be provided. The works in question must offer sufficient capacity to evacuate not only any surplus from irrigation but also rain water 4/.

The authorities may order that works installed without a permit or even those that have been authorized but may cause imminent damage shall be destroyed 5/.

The Government may install works necessary for the use of water on a regulated watercourse or in an irrigation district whenever the users refuse to do so or give evidence that they cannot afford to do so, or again, when conflicts arise between them or where the service needs to be extended 6/.

Dams and other impounding structures intended for the accumulation of public or private water must be such as to allow fish to pass 7/; and any works installed must maintain harmony with the general features of the landscape 8/.

Within forest reserves, dams and other impounding structures or hydraulic works may be installed only under licence, which will be granted provided the conservation of renewable natural resources is not jeopardized 9/.

B. Waterworks protection measures

Water users are required to maintain in perfect condition any works that have been installed 10/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

A. In the case of beneficial uses of water

The authorities may establish or reserve special areas for integrated management for the protection, propagation and breeding of aquatic species 11/.

1/ NCRNR, Art. 120.

2/ Ibid., Art. 121.

3/ Ibid., Art. 124.

4/ Ibid., Art. 125.

5/ Ibid., Art. 127.

6/ Ibid., Art. 128.

7/ Ibid., Art. 130.

8/ Ibid., Art. 304.

9/ Ibid., Art. 208.

10/ Ibid., Art. 122.

11/ Ibid., Art. 274 (g).

B. In the case of water quality and pollution control

There are specific rules designed to secure the protection of certain water from pollution or exhaustion 1/.

C. In the case of regional planning

(i) Basin management

The authorities may declare a basin to be managed when this is necessary in the light of determinate ecological, economic and social conditions 2/. In the development of the relevant plan, the views will be sought of users and public and private bodies undertaking activities in the area concerned 3/. Once approved the plan will be of mandatory implementation for the public bodies concerned 4/. It is also possible to impose implementation on private individuals by resort to servitudes or restrictions on ownership 5/. The provisions apply to the construction and operation of infrastructural works and those for the use of natural resources 6/.

Landowners benefitting directly or indirectly from the works or management operations described pay a rate proportional to the advantages they receive 7/.

(ii) Districts for the integrated management of renewable resources

In order to secure the integrated management of renewable natural resources it is possible to declare special management districts for a specified purpose and in the light of ecological, economic and social surveys 8/.

(iii) Soil conservation districts

The authorities may declare soil conservation districts in the interests of reclaiming or protecting soils 9/, and are required to develop and implement plans for these purposes 10/. Landowners there are required to implement measures that the authorities enjoin upon them and to install and maintain works there 11/.

D. In other cases

(i) In national parks, nature reserves, unique nature areas, flora and fauna sanctuaries and scenic routes only those activities are permitted which are listed in the Code and are compatible with the purposes for which the areas in question were dedicated 12/;

(ii) in the interests of landscape preservation the authorities may prohibit the installation of works in specified places 13/.

1/ NCRNR, Arts. 137, 152 and 153.

2/ Ibid., Art. 318.

3/ Ibid., Art. 317.

4/ Ibid., Art. 319.

5/ Ibid., Art. 320.

6/ Ibid., Art. 321.

7/ Ibid., Art. 322.

12/ Ibid., Art. 310.

13/ Ibid., Art. 324.

10/ Ibid., Art. 325 (b).

11/ Ibid., Art. 326.

12/ Ibid., Arts. 327-336.

13/ Ibid., Art. 303 (a).

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

While it is true that all things having to do with water and renewable natural resources come under the authority of the Institute set up for the purpose, the various ministries retain specific responsibilities which impinge on water matters, namely:

- (i) The Ministry of Agriculture, which plans and implements agricultural policies, water being one of the basic and conditioning elements here;
- (ii) the Ministry of Health, which plans and implements public health policy, governing, *inter alia*, basic sanitation;
- (iii) the Ministry of Mines and Energy, which plans and implements energy policy, including that regarding hydroelectric generation;
- (iv) the Ministry of Public Works, which plans and implements policy on public works, including hydraulic installations.

The Institute for the Development of Renewable Natural Resources (INDERENA) is the authority for administering the National Code for Renewable Natural Resources and Environment Protection referred to above and, in general, prescribes rules for, administers, and provides for the conservation and development of renewable natural resources in the country, grants concessions, patents, licences and permits and supervises the exercise made of these, carries out works and activities necessary for the conservation and development of resources as well as the use of these for scientific, educational, recreational and amenity purposes 1/.

The Agrarian Reform Institute of Colombia (INCORA) carries on a programme of agrarian reform under which it is responsible for the administration of water in irrigation districts 2/.

The Meteorology and Hydrology Service of Colombia maintains observation, measurement, analysis and public information services on matters relating to hydrology and meteorology.

B. At the intermediate level

The Valle del Cauca Regional Self-governing Corporation is responsible for promoting and administering the resources of a region around the town of Cali, which comprises a major portion of the Cauca basin 3/. In this region, too, it carries out the statutory terms of reference of INDERENA 4/.

The Corporation for the Development of the Sabana de Bogotá and the Ubaté" and Chiquinquirá Valleys, is responsible for promoting and administering resources in a region adjacent to the city of Bogotá and there carries out the statutory terms of reference of INDERENA 5/.

1/ Decree No. 2420, of 24.IX. 1968.

2/ Ibid., Art. 25.

3/ Legislative Decree No. 3110, of 22.X.1954; Decree No. 1829, of 5.VII.1955; Decree No. 0160 of 31.I.1956; Act No. 25, of 25.V.1959; Decree No. 1707, of 19.VI.1960; amendments to the Constitution, 1954 and 1959.

4/ Decree No. 2420, of 24.IX.1968, Arts. 23 and 23bis; Order of INDERENA No. 14, of 26.VIII. 1969. See also Section XII, A.

5/ Ibid.

C. At the local level

Users' associations are set up voluntarily by those making use of one or more watercourses within one and the same system or division or enjoy rights to make use of the water of one and the same man-made channel 1/.

D. At the international level

Whenever it is a matter of water and other renewable natural resources shared with neighbouring countries, the Government is required to supplement existing agreements or negotiate others for the following purposes: to provide for the reciprocal and ongoing exchange of information needed for planning and developing and securing the optimum use of all those resources; reciprocal and prior notification of intended alteration or disturbance of the environment likely to arise as a result of prospective work projects and sufficiently in advance so that the respective governments can take action in defence of their rights; joint administration by the governments concerned when such use cannot be shared physically between the countries concerned or technical and economic considerations counsel against such sharing; and, lastly, the adoption of measures designed to ensure that the national use of those sources and environmental components shall not have adverse effects on other countries 2/.

Colombia has also acceded to the proposal for a juridical and administrative system for the use of the rivers of America formulated by the VII Inter-American Conference of Montevideo in 1933 (see under Argentina, Section XII, D).

With the other countries of the Amazon Basin, Colombia has established the regional system described under Bolivia, Section XII, D.

The frontier regime established with Venezuela limits the fishing rights of the respective States to the median line of the non-navigable rivers and other watercourses, prohibits the separation of the frontier water by means of fixed nets or any other device impeding the free passage of the fish from one bank to the other, and fishing with explosives, stunning methods or any other procedure resulting in the destruction of the fish, though the use of bait is permitted 3/.

Colombia has agreed with Ecuador and Venezuela on reciprocal shipping rights on their rivers 4/.

Again, the Presidents of Colombia and Venezuela agreed in July 1976 to appoint a Commission for the harmonious development of the basins of the rivers Zulia, Catacumbo, Meta, Arauco and Orinoco.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

A. At the national level

The Electrification Institute of Colombia (ICEL) provides electricity services in part fed from hydroelectric sources which it has harnessed.

Both INDERENA and INCORA (see Section II, A) make use of water for the pursuit of their objectives.

1/ NCRNR, Art. 161.

2/ Ibid., Art. 10.

3/ Convention of 5.VIII.1942, Arts. XXII and XXIII.

4/ Treaties of 15.VI.1916 (Bogotá) and 5.IV.1941 (Cúcuta).

B. At the regional level

The regional corporations referred to in Section XII, B, also make use of water for their institutional purposes.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

A. Government financial participation and reimbursement policies

The State finances most hydraulic installations from funds earmarked in the national budget and recovers its outlay, at least partially, by means of rates, taxes and other dues. Thus, the beneficiaries under the agrarian reform programme are required to make instalment payments for irrigation and drainage works needed for farming the land that they have been allocated thereunder 1/.

B. Water rates and charges

The electricity rate 2/ and the rate payable for drinking water supply and sewerage services goes towards financing the maintenance and operation of the hydraulic installations that these specific uses render necessary.

The National Code of Renewable Natural Resources and Environment Protection levies rates on all those who:

- (i) use of water for profit 3/, including such use for waste disposal purposes 4/;
- (ii) obtain direct or indirect advantage from the works or basin management schemes 5/;
- (iii) work living aquatic sources 6/.

In addition, water users are expected to contribute pro rata to the conservation of hydraulic works, inspection roads and other works for the common facility 7/.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

It is not possible to acquire any use right over a resource when such a right has already been granted to another party 8/. In any case, the Civil Code declares prior acquired rights to continue in being 9/.

B. Modification, termination and re-allocation of water rights

Private ownership of water is extinguished if the holder does not avail himself of the right within three consecutive years following the promulgation of the Code 10/.

1/ Agrarian Reform Act of 1961, Sections 75 and 77, together with the Amending Act of 1968, Section 20.

2/ Electricity Act of 21.IX.1928, Sections 6 and 11.

3/ NCRNR. Art. 159.

4/ Ibid., Art. 18.

5/ Ibid., Art. 322.

6/ Ibid., Art. 267, second proviso.

7/ Ibid., Art. 133.

8/ Ibid., Art. 522.

9/ C.C, Art. 684; NCRNR, Arts. 83 and 85.

10/ NCRNR, Art. 82.

Use permits become extinguished upon the expiry of the term for which they were granted 1/.

Concessions become extinguished:

- (i) Upon the expiry of the term for which they were granted;
- (ii) by forfeiture, which the authorities may declare following a hearing of the party concerned, due to failure on his part to comply with the Act or the conditions governing the concession where this penalty is applicable 2/.

C. Water tribunals, courts and other judiciary water authorities

There are no water courts in Colombia.

Water rights are acquired and protected through administrative procedures. Regional inspectors have first instance authority for dealing with appeals made to INDERENA.

D. Penalties

In addition to the penalties contemplated in the Criminal Code for offences involving water, the National Code of Renewable Natural Resources and Environment Protection provides for the making of regulations to establish a system of law enforcement by means of fines. As indicated under Section XV, B (ii), failure to comply with certain obligations is punishable with the forfeiture of rights.

1/ NCRNR, Art. 55.

2/ Ibid., Arts. 62 and 63.

ECUADOR

I. INTRODUCTION

Ecuador is an Andean country, with rivers flowing some into the Pacific and others into the Amazon Basin. The Western and Central Cordilleras enclose a plateau averaging 3 000m above sea level, known as the Sierra. This elevation explains why the country being, albeit traversed by the Equator, has such varied climates and so many snow-capped peaks. Irrigation is needed in this region to enhance agricultural production.

In the coastal region (Costa) to the west, arid zones alternate with very humid ones supporting a dense vegetation. The region to the east (Oriente) is one of tropical climate and forest and abundant rainfall.

The principal rivers of the Pacific watershed are the Esmeraldas and Guayas, the latter flowing into an estuary forming a single body of water with the Bay of Guayaquil. The Chira and Puyango flow through Peruvian territory, also to empty into the Pacific, while the Mira flows through Colombia before so doing. The Putumayo and the Napo flow into the Amazon.

Besides the traditional tropical crops, there is now a modern sea-fishing industry and a thrusting oil industry, the latter supported by the major reserves discovered in the last decade.

Ecuador has a population of some 6 726 400 living mainly in the coastal region and in the Sierra. The country is 283 561 km² in area 1/. About 180 000 ha are irrigated.

What is now Ecuador was conquered by the Incas in the late XV century and by Spain in the late XVI century. In 1809 a home government was set up and in 1820 the country proclaimed its independence, to be consolidated only after the battle of Pichincha (1822). Up to 1830, Ecuador, together with the Nueva Granada and Venezuela, made up Gran Colombia. It was about this time that the country went to war with Peru over the possession of the Guayaquil region.

II. LEGISLATION IN FORCE

The principal sources of legislation regarding water are:

1. The Constitution, of 23.V.1977. This reserves to the State the working of renewable natural resources, and potable water supply services, as well as those of electric power supply (Art. 46);
2. the Water Act, No. 369, of 18.V.1972, 2/. This Act prescribes rules for everything having to do with water. It was amended by Supreme Decree No. 253, of 9.III.1973, while the Decree promulgating the enforcement Regulations is Decree No. 40 of 18.1.1973 3/;
3. the Environmental Pollution Prevention and Control Act, introduced by Decree No. 374, of 21.V.1976. Chapter VI has specific rules governing water pollution;
4. Decree No. 1551, of 11.XI.1966, setting up the Water Resource Institute of Ecuador (INERHI);

1/ Source: United Nations, Map 2753 (S), May 1974.

2/ In the notes, Water Act is abbreviated "W.A."

3/ In the notes, the Water Act General Regulations are abbreviated "W.R."

5. the Civil Code, of 1970. This defines the juridical nature of water and servitudes (Arts. 621, 631, 658-691, 1003 and 1004) 1/;
6. the General Mining Act, introduced by Supreme Decree No. 1464, of 19.VIII.1971. This contains a number of rules governing the raining uses of water;
7. Supreme Decree No. 188, of 4.II.1971, approving the Public Health Code;
8. the Electrification Act, of 23.V.1961. This makes it obligatory to obtain a permit before installing electric plant of a given power rating (Section 17);
9. the Regulations for the conservation of dams and other impounding structures, introduced by Order No. 81, of 6.III.1978;
10. the Criminal Code. This prescribes penalties for damage caused to rivers, canals, streams, ponds and hydraulic installations, the illicit taking of water, causing floods or waterlogging, and failure to provide for the protection of specified hydraulic works (Arts. 94, 554-556 and 578-580);
11. the Marine Fisheries and Hunting Act. This places restrictions on the ownership of the foreshore and contains certain prohibitions designed to facilitate fishing and to conserve the natural resource concerned (Sections 11 and 50);
12. the Maritime Police Code. This contains rules governing the navigability and the recreational use of water (Arts. 80 and following).

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

The Civil Code is categoric in declaring that water is not susceptible of ownership, being a good common to all men and that no nation, corporation or individual is entitled to appropriate it. In addition, the Code calls for legislation to prescribe rules governing the use and other enjoyment of water 2/.

Next, the Water Act lays down that water in rivers, lakes, lagoons and springs rising and losing their identity on one and the same property, and any snowfall, natural waterfalls and other sources, including groundwater whether emerging at the surface or not, constitute national property for the use of the public, may not be the matter of commerce, and the ownership thereof is inalienable and immune from prescription 3/. The same Act states that there is no such thing as, and no recognition of, ownership rights acquired over water, while rights existing before the introduction of the Act are conditional upon the efficient use of the resource in conformity with the Act itself 4/.

The beds and channels, as the case may be, of rivers, lakes, lagoons, streams and other watercourses or permanent impounding structures are deemed to be national property for public use 5/.

1/ In the notes, Civil Code is abbreviated "C.C.".

2/ C.C., Arts. 621 and 1155.

3/ W.A., Sections 1 and 2.

4/ Ibid., Section 2 (2).

5/ Ibid., Section 4.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

Water may be used for domestic needs 1/ and for those of watering livestock without a concession or permit being necessary^{2/}.

Rainwater may be collected in tanks, cisterns or small impounding structures for household needs and irrigation, industrial and other purposes, provided third parties are not aggrieved thereby 3/.

Except in the cases here mentioned, water may be used only by virtue of a right granted by the authorities 4/.

B. Water use authorizations, permits or concessions

The following are the characteristics of a water right:

(i) It is granted subject to the condition that no interference arises with other uses, that there is water in sufficient quantity and appropriate quality available, that the authorities approve the plans and the installations and that evidence is produced as to the need for the water 5/;

(ii) it is guaranteed by the State subject to such limitations that are necessary to secure efficient use in favour of production 6/;

(iii) several water use rights may be granted by means of a single deed, which will specify where and for what purposes they may be exercised 7/;

(iv) it is non-transferable 8/;

(v) it gives rise to a payment, insofar as it levies a rate (this rule does not apply in the case of concessions for the supply of drinking water and electric energy for the public service) 9/;

(vi) it carries with it the obligation to install offtakes, conduits, and such supply, metering and control works as are necessary for the exercise of this right 10/;

(vii) it entitles the holder to constitute servitudes 11/;

(viii) it may be granted for a fixed term or otherwise, though in all cases limited to the time needed for the economic evolution of the enterprise concerned 12/;

(ix) it may be suspended, modified and withdrawn if the beneficiary does not use the water efficiently, or does so otherwise than as provided, or for purposes different from those stated, in the reasons adduced for making the grant 13/.

1/ W.A., Section 14.

2/ Ibid., Section 70.

3/ Ibid., Section 99.

4/ Ibid., Sections 3, 8, 12 and 14.

5/ Ibid., Sections 24, 7, 33 and 38.

6/ Ibid., Sections 26 and 27; W.R., Reg. 77.

7/ Ibid.

8/ W.A., Section 5.

9/ Ibid., Section 18, as inserted by Decree No. 263, of 9.III.1973; W.R., Reg. 79.

10/ W.A., Section 15.

11/ Ibid., Section 6.

12/ Ibid., Section 23; W.R., Reg. 78.

13/ W.A., Section 31.

(x) it becomes extinguished upon the cessation of the purpose for which it was granted, upon expiry of the term, or if a manifest diminution in the resource renders the use impossible 1/.

(xi) applications for a water use right must contain the following particulars 2/:

- The source from which it is proposed to draw the water;
- the necessary flow rate and place of tapping;
- names and addresses of known users;
- the proposed use;
- works and installations needing to be provided; and
- technical surveys and plans.

V. ORDER OF PRIORITIES

A. Among different uses

Whenever water is insufficient in quantity to satisfy more than one use, preference will be accorded to the use which best serves the economic and social interests of the country 3/.

The Water Act lays down the following priorities, which the authorities may modify in the event of a "social emergency":

1. Supply of population centres, domestic needs and livestock watering;
2. crop and animal husbandry;
3. energy production, and industrial and mining uses;
4. other uses.

The priority mentioned first in the above list may not be modified in any event 4/.

B. Among different existing rights

See Section XV, A.

The special priorities regarding groundwater are dealt with in Section IX, B and C.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

Water may be used for domestic needs without a concession or special permit being required 5/.

1/ W.A., Section 36.

2/ Ibid., Section 84.

3/ Ibid., Section 25.

4/ Ibid., Section 34; W.R., Reg. 85. .

5/ W.A., Sections 14 and 70; W.R., Reg. 109.

B. Municipal uses

Concessions for human consumption, domestic use and the sanitation of population centres are granted to municipalities, provincial councils, public law or private law bodies and to individuals 1/.

C. Agricultural uses

The right to use water for irrigation is granted exclusively to persons able to justify their needs 2/ and subject to the following priorities 3/:

1. Farming (crop and livestock) land where the right was extant under systems prior to the enactment of the Water Act;
2. new irrigation systems;
3. leaching out of land.

Any land lying below irrigation canals built with State funds must be irrigated unless it has a gradient one in five or greater, or the type of soil does not make for efficient agricultural production, or, again, the land already has sufficient water 4/. Even where the water is not used the rate has to be paid just as if it were 5/.

D. Fishing

There is no specific legislative provision regarding fisheries. However, the Marine Fisheries and Hunting Act contains a number of rules governing river and lake fishing, where those so engaging may occupy temporarily an 8 metre-wide strip of the banks of rivers, lakes and lagoons in the public use 6/. Any activities involving prey are prohibited 7/.

E. Hydropower

Plans for hydroelectric generation must be approved in the first place by the Electrification Institute of Ecuador (INECEL), after which water use rights are arranged with the authorities 8/. Any water used for power generation must be returned to the public body of water following appropriate treatment 9/.

F. Industrial and mining uses

Applications for the use of water for the installation and operation of industrial plant and the working of mineral deposits must be approved by the industrial or mining authorities and, as appropriate, accompanied by a memorandum justifying the relevant plans 10/. Here again, the water must be suitably treated and returned to the body whence it was obtained 11/.

1/ W.A., Section 37; W.R., Reg. 107.

2/ W.A., Sections 38 and 39.

3/ Ibid., Section 110.

4/ Ibid., Sections 51 and 52.

5/ Ibid., Section 53.

6/ Marine Fisheries and Hunting Act., Section 11.

7/ Ibid., Section 50.

8/ W.R., Reg. 116.

9/ W.A., Section 40; W.R., Reg. 115.

10/ W.R., Regs. 116 and 117.

11/ W.A., Section 40; W.R., Reg. 115.

G. Transport

The grant of a water use right for navigation or flotation purposes requires the approval of the military authorities and, where national security might be affected, a report from the Armed Forces Joint Command 1/. The Maritime Police Code prescribes rules governing navigation and prohibits acts prejudicial to navigable waterways 2/.

H. Medicinal and thermal uses

Control over and surveys involved in the prospecting for, and working of, mineral, thermal and medicinal waters is the responsibility of the Water Resource Institute of Ecuador (INERHI) 3/. Working is normally undertaken by the State or the respective municipalities but use rights may also be granted to individuals or association contracts may be entered into for the conveying of the water to bottling plant, convalescent establishments, bathing resorts and the like 4/. Upon the expiry of the grant, the works and installations pass under State ownership, and no compensation is payable 5/.

Owners of land lying within various declared protection areas for mineral water sources and duly demarcated by the authorities must observe the technical rules that the latter impose. They must allow works to proceed for the tapping of the source and its adaptation to the purpose contemplated in the concession; and no septic tanks may be installed 6/.

The Ministry of Health from time to time carries out analyses on mineral water so worked in order to ascertain any changes in composition, temperature and other physical, chemical and bacteriological factors 7/.

I. Recreational uses

The Maritime Police Code prescribes protection measures in connection with bathing and the suitability of the water in question for this purpose 8/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection

Owners of land adjacent to publicly owned channels may, subject to prior inspections by the authorities:

- (i) Install protective works such as plantations, walls, stockades or revetments 9/;
- (ii) erect defensive works in channels or restore to the former bed the water of lakes or rivers which tend to change their course to the detriment of the land in question 10/.

In their turn, these owners must allow the construction of works on the banks of rivers and other natural watercourses in order to secure the protection of other assets or other holdings against the action of water 11/.

1/ W.A., Section 30.

2/ Ibid., Sections 82 ff.

3/ Ibid., Section 46; W.R., Reg. 97.

4/ W.A., Section 47.

5/ Ibid.

6/ W.R., Regs. 98 and 99.

7/ Ibid., Reg. 100.

8/ Maritime Police Code, Arts. 93 ff.

9/ W.A., Section 9.

10/ Ibid., Section 11.

11/ Ibid., Section 60.

B. Soil erosion and siltation

INERHI and the Forest Service are required to provide jointly for the protection, conservation and augmentation of water resources, and the prevention of erosion and forest fires and excessive deforestation 1/.

C. Drainage and sewerage

The Water Act assigns a national character to works for drainage and land reclamation 2/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

A. Waste and misuse of water

In order to secure a greater availability of water, the authorities are required to protect and develop basins 3/. Any user must exercise his rights at the greatest level of efficiency and economy and contribute to the maintenance and conservation of the waterworks that he uses 4/.

B. Recycling and re-use of water

Water use rights may be granted in respect of water surplus to any given land or industrial undertaking 5/.

C. Health protection

The Environmental Pollution Prevention and Control Act is in large measure given over to securing the protection of the health of humans, animals and plants. This is especially so where it prohibits the discharge into sewerage systems, streams, conduits, rivers, lakes or sea or the seepage into the soil of effluents containing contaminants that are harmful to human health, the fauna, the flora or to property when such effluents are not in conformity with the technical rules and the regulations prescribed by the authorities 6/.

D. Pollution

The prohibition referred to in subsection C above, is also directed to securing the prevention or the control of water pollution. The Water Act defines as pollution any deterioration of the physical, chemical or biological characteristics of water due to solid, liquid, gaseous, radioactive or other substances which wholly or partially limit the various uses of water 7/.

It also places on users the obligation of carrying out from time to time an analysis of the water that they use and of providing suitable treatment for water exceeding the pollution tolerances prescribed by the Water Authorities 8/. The authorities supervise, jointly with the Ministry of Health, all installations for the treatment of water that has become polluted 9/.

1/ W.A., Section 86; W.r., Reg. 16.

2/ W.A., Section 49.

3/ Ibid., Section 20.

4/ Ibid., Section 21.

5/ Ibid., Section 48.

6/ Environmental Pollution, Prevention and Control Act., Section 16.

7/ W.R., Regs. 89 and 90.

8/ Ibid., Reg. 91.

9/ Ibid., Reg. 92.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

A. The licensing of drillers

In order to drill by way of prospecting for groundwater it is necessary to have an annual license granted by INERHI. For this a fee is payable 1/.

B. Exploration and exploitation licences

It is permitted to prospect for groundwater provided one has an authorization from the Government agency administering the Water Act, in this case INERHI 2/. Any water brought to the surface may be made use of only in the manner described in Section IV, above, and subject to the following special conditions 3/:

- (i) That there are no adverse effects on the aquifer or on the surface area comprised within the zone of influence of the well or the channel;
- (ii) that there is no interference with other wells, channels or sources of water or any previous emergence of that water.

The authorities may require those concerned to alter their method, system or installations for bringing water to the surface if these are unsuitable 4/ and even that they close their wells or galleries when these interfere with the underground flow feeding existing wells 5/.

Owners of land where water is so tapped enjoy priority for concessions in respect of surplus water 6/.

C. Groundwater resources protection measures

Any person discovering groundwater is required to notify the authorities to that effect and supply any technical information that he obtained in the process 7/.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

Authorization is required for the construction of dams and for any changes in offtakes 8/.

Any user may lead off from the common conduit the water to which he is entitled at the point most suitable to him provided he does not thereby render any servitude more onerous or adversely affect the right of other users, and provided he makes good any adverse effects which nevertheless occur. In addition he is required to install a metering device at the point at which he leads off the water if any injured party demands that he do so 9/.

The works used in the exercise of a water right must conform to specifications, surveys and plans approved by the authorities, otherwise the latter may require the removal, modification, restructuring or renovation 10/.

1/ W.A., Section 44; W.R., Reg. 120.

2/ W.A., Section 41; W.R., Reg. 120.

3/ W.A., Section 41.

4/ Ibid., Section 43; W.R., Reg. 120.

5/ W.A., Section 57.

6/ Ibid., Section 42.

7/ Ibid., Section 45.

8/ Ibid., Section 35.

9/ Ibid., Section 36.

10/ Ibid., Section 56.

Landowners are required to permit the installation on the banks of rivers and other natural channels of works designed to protect property from the adverse effects of water 1/.

There is no restriction on the storage of rainwater in tanks, cisterns or small impounding structures for domestic irrigation, industrial and other needs, provided third parties are not adversely affected. The prior approval of the authorities is required for volumes in excess of 200 m³ 2/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

The authorities determine the width of the marginal strip along conduits and natural watercourses with a view to facilitating navigation, transit and other services. Land owners affected are not entitled to compensation therefor 3/. Where dams and similar impounding structures are concerned it is prohibited to:

- (i) build dwellings or livestock folds or stables or drive herds or flocks on the banks of dams and similar structures given over to purposes of drinking water supply to population centres. Existing facilities of the kind must be withdrawn to a minimum distance of 500 metres from the high water line 4/;
- (ii) discharge there any waste from population centres, nightsoil, rubbish and in general any waste matter likely to affect the composition of the water or contaminate it 5/;
- (iii) sow crops or otherwise cultivate the land within any basin having a gradient in excess of one in five 6/;
- (iv) apply fertilizers or pesticides within a basin and within a distance of five kilometres from the edge of the impounding structure 7/;
- (v) engage in felling in wooded stands or destroy any plant cover on land bordering the impounding structure and up to the crest of the divide and within the catchment basin up to a distance of 10 km upstream of the said impounding structure 8/;
- (vi) use motor driven craft on the water contained in the impounding structures 9/.

All impounding structures must be cleaned from time to time 10/.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

Ministries and their agencies are vested, where water is concerned, with the following powers and duties:

1/ W.A., Section 60.

2/ Ibid., Section 99.

3/ Ibid., Section 55.

4/ Order No. 81, of 6.III.1978, of the Minister of Agriculture, Art. 1.

5/ Ibid., Art. 2.

6/ Ibid., Art. 3.

7/ Ibid., Art. 4.

8/ Ibid., Art. 5.

9/ Ibid., Art. 6.

10/ Ibid., Art. 7.

- (i) Ministry of Agriculture: to direct and implement irrigation policy 1/;
- (ii) Ministry of Natural and Energy Resources: to develop and implement policies, plans and programmes for the development of energy resources; to compile geological maps and to install regional electric supply systems 2/;
- (iii) Ministry of Health: to coordinate, acting through the Sanitary Works Institute of Ecuador, the enforcement of the Environmental Pollution Prevention and Control Act 3/; to be responsible for the extension of drinking water supply and sewerage services and for the preservation, conservation and improvement of the environment 4/; and to prescribe rules with respect to mineral, thermal and medicinal waters 5/;
- (iv) Ministry of Public Works: to build and maintain sewerage systems, among other public works, acting through its Directorate of Public Works 6/;
- (v) the Water Resource Institute of Ecuador (INERHI), reporting to the Ministry of Agriculture: to enforce the Water Act. Accordingly, it controls, protects and administers the country's water resources 7/. To this end it plans the use and development of water, carries out evaluations and inventories of water, delimits protection areas, declares states of emergency, takes measures for the protection of water and, generally, promotes the basin development 8/. The Institute's Advisory Council on Water Matters is the highest administrative organ for the enforcement of the Water Act. Jointly with the Board of Governors, this Council determines general policy for such enforcement 9/. It rules in appeal and in final instance in matters where the decisions of the heads of district or agencies of the Institute are contested 10/;
- (vi) the Sanitary Works Institute of Ecuador: to provide drinking water and sewerage services and to approve plans for concessions for drinking water uses 11/;
- (vii) the Electrification Institute of Ecuador (INECEL), reporting to the Ministry of Natural and Energy Resources: to build and operate hydroelectric schemes and to approve projects for concessions for electric generation 12/;
- (viii) the Industrial Development Centre of Ecuador (CENDES): to approve projects for the industrial uses of water 13/;
- (ix) the National Geology and Mining Service: to prescribe rules governing mining uses 14/;
- (x) the Agrarian Reform and Land Settlement Institute: to guide, promote and control irrigation and drainage on farmland;

1/ Decree No. 162, of 16.II.1973.

2/ Ibid., and Decree No. 667, of 24.X.1970

3/ Environmental Pollution Prevention and Control Act, Section 8.

4/ Decree of the Constituent Assembly No. 84 (6) 4167.

5/ W.A., Section 46; W.R., Regs. 97 and 100.

6/ Budget Act 1978.

7/ Decree No. 1551, of 11.XI.1966

8/ W.A., Section 13.

9/ W.R., Reg. 2.

10/ W.A., Section 81.

11/ W.R., Reg. 106.

12/ Ibid., Reg. 115.

13/ Ibid., Reg. 116.

14/ Ibid., Reg. 117.

- (xi) the Maritime Development Directorate: to exercise responsibility for shipping on rivers and the sea and to enforce the Maritime Police Code;
- (xii) the National Fisheries Institute: in addition to its specific functions in matters affecting fisheries, to propose measures for conserving the aquatic environment and for abating pollution there;
- (xiii) the Inter-Institutional Environment Protection Committee: to plan the use of air, water and soil resources with a view to the prevention and control of environmental pollution, to ensure that development projects contemplate the use of these resources in such a way as not to cause damage to the environment, to enforce the relevant regulations, and to carry out research and advisory functions 1/;
- (xiv) the National Meteorology and Hydrology Institute, reporting to the Ministry of Natural and Energy Resources: to establish and operate the meteorology and hydrology network, to evaluate water resources and to carry out meteorological, agrometeorological and climatological studies throughout the country.

B. At the basin level

The Río Guayas Basin Survey Committee makes surveys and plans for this area. It is also empowered to install irrigation, electric generation, drinking water supply, sewerage and flood control works.

C. At the international level

In 1933 Ecuador signed the Montevideo declaration arising out of the VII Inter-American Conference (see under Argentina, Section XII, D), and in 1978 the Amazon Cooperation Treaty mentioned under Bolivia, Section XII, D,

Together with Peru, Ecuador has set up a Joint Commission to implement the programme for hydrological survey and multi-purpose works in the Puyango-Tumbas and Catamayo-Chira basins 2/.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

A. At the national level

The Sanitary Works Institute of Ecuador (IEOS) and the Electrification Institute of Ecuador (INECEL), referred to in Section XII, A, install works and utilize water for the provision of the public services placed in their care.

B. At the regional or basin level

The Río Guayas Basin Survey Commission is empowered, in addition, to construct hydraulic installations. The provincial councils and municipal councils, in their turn, install irrigation, electric power generation, drinking water supply and sewerage works as necessary in the areas for which they are responsible. The Economic Transformation Centre for the provinces of Azuay, Cañar and Morona-Santiago and the Manabí Province Reclamation Centre are empowered to promote, carry out and administer infrastructural works for the purposes referred to in the preceding paragraph.

1/ Environmental Pollution Prevention and Control Act, Sections 4 and 6.

2/ Treaty of 27.IX.1971 and the Regulations thereunder, of 14.VI.1972.

C. At the user level

(i) Water boards

Where more than five persons hold rights to use water in common, a water board is brought into being. The statutes of such a board, as duly approved by the authorities, prescribe the organization and operation and the distribution, use and conservation of the water. The characteristics of these boards are, briefly:

1. They are supervised in their operation by the authorities 1/;
2. they may come into being automatically or upon application by interested persons 2/;
3. their governing body is the Assembly, which in turn appoints the administrative body, known as the Water Council 3/;
4. they are supported by the contributions of their members and from assets received under whatever title 4/.

(ii) Irrigation and drainage commissions

The irrigation and land drainage schemes installed with State funds may be administered by irrigation and drainage commissions 5/.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

A. Government financial participation and reimbursement policies

The Water Act lays down that the State and other bodies corporate under public law shall recover from beneficiaries the costs of hydraulic installations and of their operation and maintenance provided out of the public purse with the exception of costs incurred for social service reasons as long as the economic yield of the works in question is not affected 6/.

B. Water rates and charges

The administrative authority collects rates for the use rights that it grants 7/. These rates must also be paid by landowners whenever the law requires them to irrigate their land 8/.

For irrigation and industrial uses payment is made on the basis of preset annual volumes and, for the tapping of mineral water, per litre. For the recreational use of water a flat rate is payable.

Bodies providing electricity supply and drinking water services (INECEL, IEOS) collect the relevant rates.

1/ W.A., Section 76.

2/ W.R., Reg. 28.

3/ Ibid., Regs. 29 ff.

4/ Ibid., Reg. 42.

5/ Ibid., Regs. 48 ff.

6/ W.A., Section 17.

7/ Ibid., Section 18, as amended by Decree No. 253, of 9.III.1973, and Section 104.

8/ Ibid., Section 51.

In their turn, users of any conduit must share, in proportion to their rights, in the cost of cleaning, repair, management and construction of the works necessary for maintenance and conservation purposes 1/.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

The Water Act declares all rights acquired in respect of water up to the date of its proclamation (18.V.1972) to be extinguished, and these include ownership rights which now only subsist subject to the conditions that the said Act imposes and as governed by the efficient use of the resource 2/.

B. Modification, termination and re-allocation of water rights

Any water use right may be cancelled, suspended or amended if the user does not avail himself of it in an efficient manner or does so in a different manner or for a different purpose from that laid down in the concession 3/.

Water use rights lapse on the cessation of the purpose for which they were granted or on expiry of the term of the authorization or because the resource has diminished to the extent that its use is no longer possible 4/.

Water rights also lapse upon failure to pay INERHI the statutory rate 5/ or for failure to have the right entered in the appropriate register 6/.

Rights may be suspended if the holder repeats an offence punished by the Water Act 7/, or if it is necessary to install works for the conservation and improvement of servitudes of aqueduct and the like 8/, or for arrears in payment of one's share in the costs of maintaining works or for services 9/.

C. Water tribunals, courts and other judiciary water authorities

There are no water tribunals in Ecuador.

The heads of the agencies or districts coming under INERHI deal with and rule in the first instance in matters coming within the purview of the Water Act 10/.

In appeal, in final instance, the ruling is given by the Advisory Council on Water Matters 11/, (see Section XII, A(v)). Rulings given in the latter instance may be appealed through the ordinary courts 12/.

Claims for compensation for damage arising out of servitudes are dealt with by the ordinary civil magistrature 13/.

1/ W.A., Section 75.

2/ Ibid., Section 2, second and third provisos, and Section 3.

3/ Ibid., Section 31.

4/ Ibid., Section 32.

5/ W.R., Reg. 79.

6/ Ibid.

7/ W.A., Section 77; W.R., Reg. 24.

8/ W.A., Section 29.

9/ W.R., Reg. 43.

10/ W.A., Section 80.

11/ Ibid., Section 81.

12/ Ibid., Section 82.

13/ Ibid., Section 91.

The heads of the agencies and districts coming under INERHI also have powers to judge offences and impose punishments in a single instance 1/.

D. Penalties

In addition to the penalties contemplated in the Criminal Code, the Water Act prescribes others for offences under its terms consisting in a fine of not less than 500 sucres and not more than the equivalent of 100 percent of the benefit obtained through the illicit action so punished, or 100 percent of the cost of the damage thereby caused.

The head of district will appoint an INERHI expert to assess such damage or benefit. The offender may appoint his own expert 2/.

Second and subsequent offences are punishable with the temporary withholding of the water use 3/.

As indicated under B above, all offences under the Water Act are punished with the suspension or forfeiture of rights 4/.

The Environmental Pollution Prevention and Control Act is more severe in that it punishes with a term of imprisonment the offence of discharging effluents containing contaminated substances in violation of the relevant technical rules and regulations whenever this has an adverse effect on human, animal or plant health as detailed in the Act itself 5/.

Other offences are punishable by means of a fine 6/.

1/ W.A., Section 95.

2/ Ibid., Section 77; W.R., Reg. 21.

3/ W.A., Section 77 (end).

4/ Ibid., Sections 31 and 32; W.R., Regs. 24, 29, 43, 79 and 104.

5/ Environmental Pollution Prevention and Control Act, Sections 16 and 26 (a) and (c).

6/ Ibid., (d).

FRENCH GUIANA 1/

I. INTRODUCTION

Guiana does not enjoy statehood, being an overseas department of France. It lies on the Atlantic coast toward the north of the South American continent. The terrain is predominantly flat, rising gradually from the coast to an elevation of approximately 800 metres.

There are twenty rivers flowing across a territory some 90 000 km² in size 2/. Of these the Oyapoc river forms the frontier with Brazil and the Maroni-Itani with Suriname. Rainfall is abundant and accounts for the forests that occupy 90 percent of the land area.

The principal crop is sugarcane, but banana and maize growing and forest working are carried on.

The discovery of major reserves of bauxite opens up prospects for mining development which has hitherto proceeded at a slow pace.

At the 1977 census there were 58 000 inhabitants 3/.

The Treaty of Breda gave France rights over this part of the Guyana region, which was invaded by Britain in 1654 and by Holland in 1676, to be occupied by Portugal from 1809 to 1817. In 1946 Guiana's status was changed to that of an overseas department, giving the country the same prerogatives as the departments of metropolitan France, by which token the same laws as those passed there under the rules introduced following the promulgation of the Constitution of 1946 are enforceable in Guiana. For enactments prior to that year express provision was required - as distinct from those made solely for Guiana. By the same token, again, the Ministers are vested with the same powers over the Department as those in the metropolitan country, subject to exceptions and formalities laid down by law. A minister coordinates the activities of the various ministries in these overseas departments.

II. LEGISLATION IN FORCE

The Ministry for the Environment is currently developing a new set of legal rules governing water. The principle enactments in force at the present time are:

1. The Civil Code;
2. the State Domain Code, where Article L.90, inserted by Act No. 73-550, of 28.VI.1973, assigns most water to the State public domain;
3. Act No. 64-1245, of 16.XII.1964, on the administration and classification of waters and the control of water pollution;
4. the Code of the Public Fluvial Domain and Inland Navigation 4/;
5. the Public Health Code;

1/ The author wishes to thank Mr. Jean-Marie Chardon, official of the Ministry of the Environment of France, for his advice and the background information he supplied for the preparation of this country study.

2/ Source: Europa Yearbook 1979, Vol.II, London, 1979.

3/ Ibid.

4/ In the notes this Code will be referred to by the abbreviation "CPFDIN".

6. the Criminal Code;
7. Decree No. 48-633, of 31.III.1948, declaring enforceable in Guiana Articles 45-48 and 52 and 53 of the Act of 8.IV.1898, which enacts the law governing water;
8. Decree of 1.VIII.1905, for the enforcement of the Act of 8.IV.1898, as amended by Decree No. 77-1141 of 12.X.1977;
9. Decree No. 73-218, of 23.II.1973, prescribing rules governing the disposal of effluents.

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

The following come under the State Public Domain 1/:

1. All standing and running water, except in the case of rainwater, including that impounded by man-made devices;
2. all watercourses, whether navigable or floatable or neither, and whether natural or man-made;
3. springs;
4. groundwater.

Those waters are private which were incorporated under private ownership prior to 6 April 1948 2/, provided the owners have convalidated their rights within the time limit and subject to the procedures prescribed by Decree No. 48-633 of 31.III.1948.

The right to use hot water aquifers and subterranean steam is acquired according to the procedure described in Section IX, B.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

Any landowner is entitled to make free use of water subject to the rules prescribed by law.

The right to use public water can be acquired by authorization 3/, permit 4/, or "régie" 5/.

B. Water use authorizations, permits or concessions

An authorization is granted upon application by the interested party, subject to a survey by the competent engineer, and forms the subject of a proclamation 6/.

1/ These provisions appear in the State Domain Code, Art. L.90, inserted by Act No. 73-550 of 28.VI.1973.

2/ This was the date on which Decree No. 48-633, of 31.III.1948, was published.

3/ Act of 8.IV.1898, Sections 41 and 43; Decree No. 73-218, of 23.II.1973; Ministerial Resolution of 13.V.1975.

4/ CPF DIN, Art. 38.

5/ Public Health Code, Art. L. 22. A "régie" authorizes the provision of a public service by the Government Department through its public agents, with public funds and under the supervision of the public authorities.

6/ Decree of 1.VIII.1905, Arts. 1, 2, 4-6, 8-11, 14 and 15; Decree No. 73-218, of 23.II.1973, Arts. 9 ff.

V. ORDER OF PRIORITIES

Rights acquired by landowners and users prior to 6 April 1948, provided convalidation has been applied for within a time limit of five years from that date, prevail over any other right coming into being in respect of water belonging to the State public domain 1/.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

Landowners may freely use for domestic purposes any water obtained from sources lying on their land or wells sunk there 2/.

Water offered for drinking by persons and for the preparation of food must be of potable quality 3/.

Domestic effluents must be discharged into the sewerage system laid under the public highway 4/.

B. Municipal uses

Water supplied to a community may be public 5/ or private 6/. A recent official circular to prefects explains the law applicable in the respective cases 7/.

C. Agricultural uses

Landowners may make free use of water obtained from sources or wells sunk on their land for the needs of their farm 8/.

D. Hydropower

Where thermal water or underground steam for the generation of energy is concerned, see Section IX, A.

E. Industrial and mining uses

Water use rights for industrial purposes are acquired by means of an authorization 9/.

F. Transport

Protective measures for installations provided for shipping purposes will be discussed in Section X, C.

The prefects may prohibit the circulation of engine-powered boats on all or part of any non-State river on the grounds of safety or public health or if any riparian whose

1/ State Domain Code, Art. L.90, inserted by Act No. 73-550, of 28.VI.1973; Decree No. 48-633, of 31.III.1948, Art. 2

2/ State Domain Code, Art. L.90, inserted by Act No. 73-550, of 28.VI.1973

3/ Public Health Code, Art. 19.

4/ Ibid., Arts. 33 and 35.

5/ Code of Municipalities, Arts. 407-412.

6/ Public Health Code, Art. 24, inserted by Ordinance No.58-1265, of 20.XII.1958.

7/ Circular of 9.VIII. 1978.

8/ State Domain Code, Art. L.90, inserted by Act No. 73-550, of 28.VI.1973.

9/ CPFIDIN, Arts. 25, 31 and 32; Decree-Law of 1.X.1926 amending Sections 41-43 of the Act of 8.IV.1898.

right is seriously impaired by their means makes an application in that sense 1/.

Rafts and boats may be used on watercourses and canals in the public domain only following a public contest or by the consent of the interested parties 2/, and subject to the conditions laid down for the purpose 3/. The prefect is responsible for administration and policing and the collection of tolls 4/, as governed by the general regulations contemplated in the Code of the Public Fluvial Domain and Inland Navigation 5/.

G. Medicinal and thermal uses

Installations for working mineral water and thermal establishments are subject to prior authorization by the Minister responsible for public health 6/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection

The departments in the municipalities are empowered to undertake all kinds of work for the protection against flooding though, under ministerial control, at their own expense, with or without State subsidies, either themselves or by forming departmental or interdepartmental associations 7/. A decree issued by the Council of State may empower these associations, and the departments and the municipalities, to levy contributions on all communities benefitting from the works in question 8/.

B. Drainage and sewerage

Private sewerage systems must connect up with existing public systems 9/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

A. Waste and misuse of water

With a view to preventing waste, the Council of State may issue decrees prescribing the conditions governing the construction and maintenance of public and private water systems and related installations 10/.

B. Health protection

Water intended for human consumption must be of potable quality. For this reason the authorities are required to maintain public health control over community supply services 11/.

C. Pollution

Pollution control and the regeneration of water are the main objects of Act No. 74-1245, of 16.XII.1964, which lays down the governing principles of the new legislation

1/ Act No. 64-1245, of 16.XII.1964, Section 25.

2/ CPF DIN, Art. 62.

3/ Ibid., Art. 63.

4/ Ibid., Art. 65.

5/ Ibid., Arts. 64-77.

6/ Decree of 28.III.1957.

7/ CPF DIN, Art. 45.

8/ Ibid., Art. 47.

9/ Public Health Code, Art.L.33, inserted by Ordinance No.58-1004, of 23.X.1958, Art.1.

10/ Act No.64-1245, of 16.XII.1964, Section 58.

11/ Public Health Code, Arts. L.21 and L.22.

on water in metropolitan France. Title I of the Act is given over entirely to this matter. Accordingly, it enjoins upon the authorities to carry out and keep an up-to-date inventory of the degree of pollution of water and determine, by decree, the technical specifications and physical, chemical, biological and bacteriological criteria with which bodies of water must conform and determine, also, the time limits within which they must be brought into line with the exigencies applicable to the respective activities and resources demanding the water in question 1/.

Owners of installations for the evacuation of water coming under arrangements prior to, or subsequent to, the Act here referred to are expected to take all measures necessary to ensure that the receiving body of water meets the characteristics specified by the authorities 2/.

Enactments emanating from the Council of State may prohibit or impose conditions on the disposal of water or other materials and any act likely to impair water quality 3/> any sale and distribution of products likely to cause or aggravate such acts 4/. They may prescribe compliance monitoring procedures in respect of the measures concerned 5/ and determine those cases where the administrative authorities may adopt measures that are immediately enforceable in order to ward off any danger to security and public health 6/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

A. Exploration and exploitation licences

Although groundwater comes within the public domain no rules or procedures for prospecting, surveying and tapping have been prescribed. On the other hand, a wealth of regulations throughout France govern the evacuation, drainage or other form of disposal of water or any other substance in subterranean aquifers. For these activities prior authorization is required. This is governed by the general principles applying to water in general 7/, subject to special procedures affecting this type of use as prescribed by Decree No. 73-2018, of 23.II.1973, Chapters IV and V, concerning groundwater.

B. Groundwater resources protection measures

The requirement of obtaining an authorization for removing or allowing the drainage or disposal of water or any other substance underground referred to above is intended as a means of conserving groundwater quality. Prefects are also expected to take all necessary measures in order to ensure that mine working or the underground storage of gas shall not jeopardize the use of sources of water and groundwater aquifers supplying population centres and public institutions 8/.

Specimens, documentation and all other information relative to the prospection for, and the production and regime of, groundwater are deemed to be public property, notwithstanding any provision to the contrary in the Mining Code 9/.

1/ Act No.64-1245, of 16.XII.1964, Section 3.

2/ Ibid., Section 44.

3/ Ibid., Section 6(1).

4/ Ibid., Section 6(2).

5/ Ibid., Section 6(3).

6/ Ibid., Section 6(4).

7/ Ibid., Sections 2 and 6; Act of 8.IV.1898, Section 12; Decree of 1.VIII.1905; and Decree No. 77-1141, of 12.X.1977, Art. 2.

8/ Mining Code, Art. 84, as amended by Act No. 64-1245, of 16.XII.1964, Section 42; Ordinance of 15.XI.1958, Art. 8.

9/ Act No. 64-1245, of 16.XII.1964, Section 60; Mining Code, Art. 134.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

A. Waterworks construction

Any administrative act granting, case by case, a water use right will determine the conditions in accordance with which the relevant works must be constructed and operated.

The prefects are empowered to approve technical plans for purifying plant in works installed for the extraction or removal of water and to authorize their bringing into operation 1/.

B. Waterworks operation and maintenance

Every concession holder is required to maintain the hydraulic installations in good condition. Owners of mills or industrial undertakings are expected to contribute to the maintenance of works for shipping from which they themselves benefit 2/, while the respective municipalities are required to shoulder the cost of works for the treatment of sewage 3/

C. Waterworks protection measures

It is prohibited, under penalty of a fine, to cause the degradation of, or destroy or remove works installed for the safety and convenience of shipping, including such works as are only provisionally assigned to this purpose 4/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

The law makes provision for the declaration - by decree issued by the Council of State and following the public procedure prescribed by the Act 5/ - of special areas for water management, declaration of public utility in the case of plans for water distribution, and the determination of watercourses, springs, underground aquifers, or lakes or ponds where limitations will be placed on individual water rights.

In the areas in question:

1. Any diversion, tapping or drilling affecting the water and, in general, any works likely to affect the regime or runoff, will require an administrative authorization, which will be granted by public procedure 6/;
2. owners of the above-mentioned works must declare these 7/;
3. the Prefect may order conversion works or limitations in respect of wells, diversions and works of any kind having an effect on the water in question 8/. The Council of State may by decree appoint special bodies to follow up the implementation of such orders 9/.

Any adverse effects caused by these measures create an entitlement to compensation as in the case of expropriation. However, the amount of indemnity may be reduced,

1/ Act No. 64-1245, of 16.XII.1964, Section 5.

2/ CPF DIN, Art. 39.

3/ Code of Municipalities, Art. 185.

4/ CPF DIN, Art. 24.

5/ Act No. 64-1245, of 16.XII.1964, Section 46.

6/ Ibid., Section 47.

7/ Ibid., Section 48.

8/ Ibid., Section 49.

9/ Ibid., Section 51.

perhaps eliminated altogether, if the administrative authorities offer the user whose rights have thus been affected or abolished a supply of water from some other source 1/.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The overseas department of Guiana has a similar administrative organization to those of the metropolitan country with such variations as are necessary for its adaptation to the local situation. Within this department each ministry has the same powers and duties as in the metropolis, subject to such exceptions as the law lays down. A minister or secretary of State coordinates the activities of other ministries where the overseas departments are concerned. Accordingly, the ministries of metropolitan France have the following terms of reference in the case of the overseas department of Guiana:

- (i) The Ministry of the Environment is responsible for the protection of sites and landscape, for the improvement of the environment and living conditions, for preventing, abating and eliminating pollution and any other form of nuisance, for preparing the decisions of the Interministerial Committee on the Quality of Life, for supervising the implementation of this Committee's decisions and for any law enforcement where water is concerned;
- (ii) the Ministry of Agriculture has general responsibilities. It concerns itself with land use planning, especially as regards basic facilities for drinking water supply and sewerage. It plans and implements policy for the use of water in agriculture, provides hydraulic installations for this sector, for basin management and the agricultural or other uses of water, and implements water policy in matters specifically assigned to it. All these terms of reference it carries out through the agency of its Planning Directorate;
- (iii) the Ministry of Industry, acting through the Directorate of Mines, plans and implements measures having to do with the technical supervision and safety of works for the use and conservation of the soil and its resources, the working of mines, the disposal of waste underground and, together with the Ministry of Health, with matters affecting mineral water. Through the Gas, Electricity and Coal Directorate, it prescribes regulations for and inspects factories and hydroelectric schemes;
- (iv) the Ministry of Health, acting through its Preventive Actions Division, develops public health rules prescribed by this overseas department, drinking water supply, sewerage, and the hygiene of swimming pools and similar establishments. It follows up compliance with the rules governing drinking water, inspection of well drillings, removal of effluents and the conditions with which septic tanks must conform. It issues instructions relative to installations for the tapping, treatment and regular analysis of water and contributes to the supervision of sources of supply, the classification of thermal establishments and the monitoring of radioactivity of water;
- (v) the Ministry of the Interior has supervisory powers where the municipal authorities are concerned. It draws up the specifications for concessions for the supply of drinking water and, acting through its Civil Defence Directorate, undertakes measures necessary for dealing with calamities such as flooding or accidental contamination of water;

1/ Act No.63-1245, of 16.XII.1964, Section 52.

- (vi) the Ministry of Transport acting through its Maritime Ports and Navigable Waterways Directorate installs works designed to afford protection against damage likely to be caused by water and those for the protection, improvement and refurbishing of State owned watercourses and inland navigation canals;
- (vii) the National Water Committee has an advisory role in connection with projects for the development and distribution of water of national concern and the major regional schemes and, in general, in respect of all matters coming within the purview of Act No. 64-1245, of 16 December 1964, on the administration and classification of waters and the control of water pollution;
- (viii) the Environment Committee exists to advise on problems relative to the improvement of living conditions and, in particular, to the control of pollution and similar nuisances;
- (ix) the Standing Technical Committee on Dams advises on proposed rulemaking where dams are concerned.

B. At the basin or sub-basin level

Act No. 64-1245, of 16.XII.1964, just referred to, provides for the creation at the level of each basin or group of basins, of:

- (i) A Basin Committee consisting of representatives, in equal numbers, of users, local communities and of the Government. This committee has advisory functions 1/;
- (ii) a Basin Financial Agency to promote the various actions in the common interest in the area under its jurisdiction, principally through the granting of subsidies or loans. This Agency is administered by a Council, with a membership consisting of representatives of the Government (50 percent), local communities (25 percent) and users (25 percent) 2/.

So far neither of the above committees has been appointed.

C. At the Department (Overseas Department) level

The Prefect administering the Overseas Department of Guiana, represents each of the ministries, and by that token has authority over their field services. He also has law enforcement powers concerning watercourses and fisheries and has a say in all matters having to do with water supply, water conservation and drainage, including those specifically assigned to him under the water laws 3/.

D. At the municipal level

The local mayors of the municipalities making up Guiana take such law enforcement measures as are necessary in order to prevent or eradicate contagious diseases and, for this purpose, have inspection functions in relation to the sanitary quality of water; they adopt preventive measures or those for the control of calamities and carry out the law enforcement measures prescribed by the Prefect in matters having to do with water.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

In this country there are no special or self-governing bodies concerned with water use. The Water Supply and Pollution Control Act contemplates the setting up, by decree of the Council of State, of administrative bodies (établissements publics)

1/ Act No.64-1245, of 16.XII.1964, Section 13.

2/ Ibid., Section 14.

3/ Ibid., Sections 12, 25 and 49.

subject to Government control. The purpose of these bodies is to be responsible within a basin or part of basin, or along a watercourse or a part of watercourse or, again, in a specified area, for tasks of pollution control, water supply, flood protection, the conservation and improvement of watercourses and lakes and hydraulic installations 1/.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

A. Government financial participation and reimbursement policies

The State provides financing for basic works for basin management and the major works such as those for protection against flooding 2/. This it does by means of special laws or as part of the five-year economic and social development plans 3/.

The basin financial agencies referred to in Section XII, B (ii) are authorized to finance works which they deem to be priority works within the basin in question. The financing takes the form of loans and subsidies.

Municipalities are required to pay for the operation and maintenance of sewage treatment plant 4/.

As a general rule, the law requires those benefitting from the above-described works to share in the cost of construction, operation and maintenance. This they will do by means of contributions, rental payments and rates.

B. Water rates and charges

If the basin committees that are appointed so decide, contributions may be levied with a view to funding the respective financial agencies 5/.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

All water which was the property of private individuals prior to 6 April 1948 continues to be private water, provided the owners convalidated their rights within the time limit and following the procedures prescribed by the regulations 6/.

B. Modification, termination and re-allocation of water rights

Offtakes and other installations introduced in the public fluvial domain may be removed or modified even where authorization for so doing has first been obtained 7/.

C. Water tribunals, courts and other judiciary water authorities

There are no special tribunals, and the ordinary courts deal with cases involving water rights. The administrative tribunals are competent for disputes concerning the

1/ Act No. 64-1245, of 16.XII.1964, Section 16.

2/ CPF DIN, Art. 47.

3/ Act No. 71-567, of 15.VII.1971, to approve the Sixth Economic and Social Development Plan.

4/ Code of Municipalities, Art. L.221-2 (17).

5/ Act No. 64-1245, of 16.XII.1964, Section 14.

6/ State Domain Code, Art. L.90, inserted by Act No.73-550, of 28.VI.1973; Decree No.48-633, of 13.III.1948.

7/ CPF DIN, Art. 26.

enforcement of decrees made by the Council of State, interministerial and ministerial resolutions and administrative circulars 1/.

D. Penalties

As well as crimes (délits) involving water, other offences (contraventions) are punishable by fine or custodial penalty according to their seriousness 2/.

Special legislation contemplates penalties for certain minor offences (fautes) in the form of the amendment, suspension or forfeiture of water use rights.

1/ Act of 18.XII.1968; Decrees Nos. 73-682 and 73-683, of 13.VII.1973.

2/ Criminal Code, Arts. 26, 29 and 38-41.

GUYANA

I. INTRODUCTION

The Co-operative Republic of Guyana lies on the Atlantic coast toward the north of the South American continent, and forms part of the geographic region commonly referred to as Guyana.

The principal rivers are the Demerara, which is navigable for the first sixty miles upstream, and the Essequibo. The Corentyne separates the country from Suriname.

Only the narrow coastal strip (it is eight miles wide) has been developed. This is a low-lying region where the rivers are tidal and where the heavy rains cause flooding. The wet climate facilitates the growing of tropical crops, thanks also to irrigation and drainage works. The rest of the country has a broken conformation, rising gradually to the mountains that separate Guyana from Brazil. The staple crops are sugarcane and rice. Bauxite is mined.

The territory that is now Guyana was occupied by the Dutch until 1796, who ceded it to the British in the wars following on the French Revolution. Britain restored it to Holland in 1802 but received it again under the peace treaty of 1814. Home rule was established in 1961, and on 26 May 1966 Guyana became independent, to constitute itself as a Cooperative Republic in 1970.

II. LEGISLATION IN FORCE

Guyana has no Water Code or Water Act. The following enactments are the most significant where water is concerned;

1. The Water Commissioner Act No. 8 of 1886, 6 October 1886;
2. the Guyana Water Authority Act No. 3 of 1 October 1972. This contains the law governing public drinking water supply and sewerage;
3. the Drainage and Irrigation Act No. 25 of 1940, 1 January 1941, as amended from time to time;
4. the Transport and Harbours Act No. 30 of 1931, 5 January 1932, as amended from time to time;
5. the Municipal and District Councils Act No. 24 of 1969, 28 April 1970. Sections 266 and following assign to these Councils authority over water not otherwise coming within the jurisdiction of the Water Commissioner;
6. State Lands Act No. 32 of 1903, 26 September 1903, as amended from time to time. Section 22 provides for the freedom of the use of rivers.

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

Guyana's legislation does not contemplate private ownership of water, and explicitly attributes to the State ownership and exclusive use rights of water power capable of being harnessed for the generation of energy in commercially exploitable amounts 1/.

1/ Ordinance No. 48, the Hydroelectric Power Act, 30.XI.1956 (Art. 4).

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

In the absence of a general Water Act, the right to the exclusive use of this resource has been granted hitherto by special order. As will be seen below, current legislation is concerned with prescribing rules for the construction and operation of public works for water supply, whether by public or by private enterprise, all or a portion of the cost being recovered from the beneficiaries.

Where the common use of water is concerned, rules have been made with respect to particular areas or works.

V. ORDER OF PRIORITIES

No general priorities for water use and conservation are laid down.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

The Guyana Water Authority holds the monopoly for piped drinking water supply and the provision of sewerage in those areas which in 1972 were catered for by the Water Supply Division of the Ministry of Works and Hydraulics and in those areas which lacked such services at the time 1/. In the areas in question, the Authority is required to make provision either itself or by delegation for these services 2/. Also, it may install or remove public water supply points 3/, install, extend, inspect, maintain, alter, renew and repair works when necessary and open any thoroughfare giving notice of its intention so to do and making good the surface afterwards 4/.

B. Agricultural uses

In the East Demerara region a Board has been set up to administer and improve waterworks there. The Board supplies water to plantations named in the Act which were under irrigation prior to its promulgation 5/ and those areas subsequently requesting such supply 6/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

Where there is an imminent danger of flooding in a drainage and irrigation area, the Drainage and Irrigation Board is empowered to carry out any works it considers necessary for warding off or mitigating the effects of such an event and by that token may include such works in the relevant area development plan which will be submitted for ministerial approval 7/.

1/ The Guyana Water Authority Act No.3 of 1972, Section 6.

2/ Ibid., Sections 6 (2) and 8.

3/ Ibid., Section 10.

4/ Ibid., Section 16.

5/ Act No. 26 of 1935 (14.XII.1935), Section 18, together with the relevant table.

6/ Ibid., Section 21.

7/ The Drainage and Irrigation Act No. 25 of 1940, Section 26. As regards the Plan mentioned here, see Section XI of this country study.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

The State Lands Act prohibits the dumping of objects in, and the removal of rocks or materials from, the beds of rivers in such a way that freedom of use of such rivers or shipping there will be hindered 1/. Under a law introduced last century it was prohibited even then to dump glass or to impair drinking water supply conduits 2/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

In order to drill wells it is necessary to obtain a licence granted by the Authority for an entire calendar year. The Authority may renew, suspend or withdraw these licenses 3/. Any person drilling for water is required to furnish information to the authorities concerning each drilling operation within a month of its completion 4/.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

Any construction, extension or alteration of works for the supply of drinking water and for sewerage must have the prior approval of the Guyana Water Authority 5/.

The next Section (XI) discusses the provisions governing works installed in drainage and irrigation areas.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

The Minister competent for water matters may declare drainage and irrigation areas provided Parliament votes the necessary allocations for installing works there 6/, and may levy contributions from landowners in these areas in order to cover the capital outlay 7/. A plan is developed for this purpose and must be registered 8/. This assigns to the Drainage and Irrigation Board ownership of the works, of the land where they are installed and of land within a specified radius thereof 9/. At the same time the Board is required to compensate any persons adversely affected thereby 10/. The Board's agents are authorized to enter any land in these areas, including private land, and to remove therefrom soil and other materials required for the installation of the works in question 11/.

It is prohibited to erect fences at a distance of less than 12 ft from these installations 12/, or to damage these in any way. Offences here are punishable with a fine and the obligation to repair the damage 13/.

1/ The State Lands Act No. 32 of 1903, Section 22.

2/ The Water Commissioner Act No. 8 of 1886 (6.X.1886), Sections 12 and 13.

3/ The Guyana Water Authority Act, Section 18 (1), (2) and (4).

4/ Ibid., (5).

5/ Ibid., Section 20.

6/ The Drainage and Irrigation Act No. 25 of 1940, Section 18.

7/ Ibid., Section 13.

8/ Ibid., Section 19.

9/ Ibid.

10/ Ibid., Section 22.

11/ Ibid., Section 23.

12/ Ibid., Section 21

13/ Ibid., Sections 59 and 61.

The Minister may by order place areas which lie outside the competence of the Board under the control of the Municipal and District Councils. This means that:

- (i) The Council in question is required to take all measures necessary to ensure that the drainage and irrigation works in the area are duly installed and kept in good conditions 1/;
- (ii) landowners are required to provide for the upkeep of the works in such a way that no flooding or water wastage occurs 2/;
- (iii) owners of water conduits and drains lying outside these areas must provide for their upkeep in such a way that no damage is caused to things within the area 3/.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

(i) The Drainage and Irrigation Board controls and administers drainage and irrigation works owned by it. It prescribes rules governing areas which may be included under the arrangements described in Section XI, above, prepares drainage and irrigation plans, proposes the level of contributions to be borne by beneficiary owners and also implements the plan in question 4/ acting through the Water Division of the Ministry of Agriculture;

(ii) the Guyana Water Authority controls and prescribes rules governing the tapping, production, treatment, storage, transmission, distribution and use of water. It builds, purchases, operates and maintains works for water supply and sewerage and operates the relevant public services. It carries out research, disseminates information and provides advisory services 5/;

(iii) a special Division of the Ministry of Energy and Natural Resources carries out research, supervises activities having to do with hydroelectric generation and installs the necessary plant;

(iv) the Hydrometeorological Service of the Ministry of Works and Transport assembles, stores, interprets and disseminates information on hydrometeorological matters, prescribes the procedures for collecting and processing the resulting data and evaluates basic information requirements for planning and the suitability of the observation networks and the service in general for these purposes. It also plans and operates reporting services;

(v) the Transport and Harbours Department controls and prescribes rules governing the use of port installations in the country and affords assistance to shipping in those rivers where it operates services and in estuaries 6/.

B. At the intermediate level

(i) The West Demerara Water Conservation Board. This controls, administers and prescribes rules governing the scheme for which it is responsible, installs the relevant works and provides necessary services for the conservation and efficient distribution of water. It also prescribes rules for shipping in the area under its jurisdiction 7/;

1/ The Municipal and District Councils Act No. 24 of 1969, 28.IV.1970.

2/ Ibid., Section 267.

3/ Ibid., Section 268.

4/ The Drainage and Irrigation Act No. 25 of 1940, Sections 3, 11-14, 24 ff.

5/ The Guyana Water Authority Act No. 3 of 1972, Section 5.

6/ The Transport and Harbours Act No. 30 of 1931, Section 3.

7/ Act No. 26 of 1935 (14.XII.1935), Sections 3, 16 and 18.

(ii) the Georgetown Water and Sewerage Authority. This body provides guidance and inspection, upkeep, preparation and operation as well as the administration of the works necessary for providing the drinking water supply and sewerage service to the capital 1/;

(iii) Mahaica-Mahaicony-Abary Agricultural Development Authority. This prepares plans for, approves and undertakes responsibility for the construction of drainage and irrigation systems and related works required in order to ensure efficient agricultural development in the area. It likewise prepares and approves all plans relating to land use there, including those governing the layout of new canals, roads and rural services. It coordinates the implementation of drainage and irrigation plans, and manages, operates and provides for the maintenance of drainage and irrigation systems and related facilities 2/.

C. At the local level

The municipalities are responsible for providing water in sufficient amounts for sanitation and domestic use, for extinguishing fires and for individual use 3/, and must in addition take all measures necessary to ensure that drainage and irrigation works in the areas within their jurisdiction are duly installed and kept in good condition 4/.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

The Drainage and Irrigation Board, the Guyana Water Authority, the Transport and Harbours Department, the West Demerara Water Conservation Board, the Georgetown Water and Sewerage Authority, the Mahaica-Mahaicony-Abary Agricultural Development Authority and local government authorities are all referred to in Section XII, above, by reason of the administrative character of their functions. However, they also constitute special agencies making use of water, as a perusal of their terms of reference will demonstrate.

The Guyana Sugar Corporation Ltd. produces and sells sugar and other agricultural products, and to this end provides irrigation for about 150 000 acres of land 5/.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

The State ensures that beneficiaries of hydraulic installations repay the capital laid out on their construction, operation and maintenance. Accordingly, the Guyana Water Authority is charged with recovering the cost of water supply and sewerage services that it provides 6/.

The Minister determines the proportion of the capital costs (including those for preliminary surveys) of hydraulic installations and plans drawn up for drainage and irrigation areas to be paid by occupiers, tenants or users of State land, landowners and local authorities having jurisdiction over any portion of the areas in question 7/. He also determines the total costs of maintenance, repairs and replacement of these works whenever the Board is responsible for such tasks 8/. Payment is made in the form of contributions for improvements 9/. Moneys due under this head constitute a lien

1/ The Georgetown Water and Sewerage Act No. 19 of 1929 (23.III.1929), Sections 9, 13 and 14.

2/ Act No. 27 of 1977 (31.XII.1977), Sections 3 and 5.

3/ The Municipal and District Councils Act No. 24 of 1969, 28.IV.1970

4/ Ibid., Section 266.

5/ One acre = 0.405 hectare.

6/ The Guyana Water Authority Act No.3 of 1972, Section 12.

7/ The Drainage and Irrigation Act No. 25 of 1940, Sections 11-13 and 42(a) and (b).

8/ Ibid., Sections 42(c) and 52.

9/ Ibid., Section 44.

on the land and enjoy priority over other debts 1/.

XV. WATER LAW IMPLEMENTATION

A right granted for water use is no bar to the supply accorded to the respective users being reduced in the event of shortage 2/.

There are no water courts in Guyana.

The commonest penalty for offences is the fine, though custodial penalties are also frequently imposed.

The water commissioners may impose fines on persons infringing the regulations that they have made. If they persist in the offence, the fine may be applied for each day it so continues as a comminatory sanction 3/.

Fines and custodial penalties may be imposed for causing damage to specified hydraulic installations, contamination of drinking water conduits 4/, the fact of drilling without a license 5/ and certain offences under the Guyana Water Authority Act 6/. Failure to comply with the rules made by the Authority is punishable by a fine 7/ as will be any obstruction, resistance or attempt thereat against the officials of the Drainage and Irrigation Board. Any act damaging waterworks or impeding their efficient operation, removing water or impeding its natural flow, and any other act or omission as a result of which livestock trespass on such works or adjacent land 8/, entails for the offender the obligation to pay the costs involved in making good the damage 9/.

1/ The Drainage and Irrigation Act, Section 58.

2/ Act No.26 of 1935, Section 18(6).

3/ The Water Commissioner Ordinance No. 8 of 1886.

4/ Ibid., Sections 11 and 13.

5/ The Guyana Water Authority Act No.3 of 1972, Section 18(6).

6/ Ibid., Sections 20(4), 22-24, and others.

7/ Ibid., Section 5(2).

8/ The Drainage and Irrigation Act No.25 of 1940, Sections 59 and 60.

9/ Ibid., Section 61.

PARAGUAY

I. INTRODUCTION

Paraguay is a landlocked country whose confines lie entirely within the basin of the Río de la Plata.

The moist tropical climate prevailing in the eastern region - i.e. those parts lying east of the Paraguay river - and a rainfall regime exceeding 1 300 mm yearly mean that farming can be carried on without irrigation. It is in this region that the bulk of the population resides and that the main economic activities are carried on.

The western region, or the Chaco, is arid. Here long periods of drought alternate with torrential rains. There are few surface watercourses, so that farming needs irrigation. Livestock watering is provided for by rainwater impounding structures or at points fed from groundwater sources.

The Paraguay river, which is shared with Brazil, rises in the latter country, where the regulatory effect of the Pantanal makes itself felt. Flowing into it are the Pilcomayo, which also forms the boundary with Brazil, and the Bermejo. The Paraguay river finally enters into the Paraná, a river having its origins in Brazil, where the major dams have been built along its course. In the frontier reaches, the two countries are jointly building the very large Itaipú dam; and, jointly with Argentina, on the reaches shared with that country, Paraguay is building the Yacyretá scheme.

The country's main economic activities are farming and forestry. Industry is developing, and the major hydroelectric schemes undertaken with neighbouring countries will make Paraguay a major exporter of electricity.

The country has an area of 406 750 km² 1/, with an estimated population (1976) of 2 750 000.

The present territory making up Paraguay was originally the home of the Guaraní and related tribes, and was conquered by the Spanish in the XVI century. It was brought under the Viceroyalty of Río de la Plata when the latter was created in 1776. It gained independence in 1811. A devastating war was fought with Argentina, Brazil and Uruguay in the latter half of the XIX century. The country suffered further severe losses in a war with Bolivia (1932-35) over territorial claims in the Chaco.

II. LEGISLATION IN FORCE

The main sources of legislation regarding water are:

1. The National Constitution. This enjoins upon the Government to prescribe rules for the economic life of the country (Art. 15) and upon the Congress to prescribe rules governing river navigation (Art. 76 (5));
2. the Civil Code 2/, introduced by the Acts of 19.VIII.1876 and, again, of 27.VII.1889, lays down rules governing the ownership of water and other matters relative to water (Arts. 2340, 2635 and 2637), defines the bank line (Art. 2577), determines the juridical value of changes in land due to the natural action of water (Arts. 2572-2586), defines the towpath (Arts. 2639 and 2640), prohibits specified impoundings and diversions (Arts. 2642 and 2646-2653) and legislates on servitudes (Arts. 3014-3017 and 3102-3107) 2/.

1/ Source: United Nations, Map 2753 (S), May 1974.

2/ In the notes Civil Code is abbreviated "C.C."

3. the Rural Code, introduced by Act No. 1248 of 30.IX.1931. This extends the terms of, and in certain cases amends, the rules laid down in the Civil Code. The Rural Code has rules governing fishing (Arts. 49-55), livestock watering (Arts. 269-273) and water (Arts. 348-397), and it also provides for the expropriation of forests providing protection for watersheds (Arts. 422 and 423) 1/;
4. Decree-Law No. 3729, of 20.IV.1949. This introduces a number of amendments to the Rural Code where water is concerned;
5. the River and Sea Navigation Code, introduced by Act No. 475, of 15.X.1957, which prescribes rules governing shipping, and Decree No. 26524, of 9.I.1963, prescribing rules governing raft floating;
6. Act No. 966, of 12.VIII.1964, to set up the National Electricity Undertaking (ANDE);
7. Acts Nos. 531, of 19.IX.1958 and 1095, of 9.III.1966, to set up the Sanitary Services Corporation - CORPOSANA. This is the State water supply and sewerage services corporation;
8. Act No. 713, of 28.VIII.1961. This prescribes rules governing sewerage services;
9. the Forests Act No. 422, of 23.XI.1973. This constitutes the law governing forests providing watershed protection;
10. the Criminal Code, introduced on 18.VI.1914. This prescribes penalties for flooding with intent, the destruction of waterworks, canals or landfills (Art. 252), illicit appropriation (Art. 418), and fishing within enclosed sites without the permission of the landowner (Art. 439).

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

A. Surface water resources

The following come within the public domain 2/:

- (i) Bays, coves, ports and anchorages;
- (ii) rivers and their beds and all waters flowing in natural channels;
- (iii) the banks of navigable rivers to the extent that they are necessary for navigation purposes;
- (iv) lakes navigable by vessels of over 100 tons rating and their shores;
- (v) islands formed or forming in any class of river or in navigable lakes;
- (vi) canals and any other public works installed for the utility or convenience of the community.

The following belong to the owner of the land:

- (i) Water rising there and not forming a natural channel before it flows out of the land where it so rises, and provided no damage is caused to lower-lying land 3/;

1/ In the notes Rural Code is abbreviated "R.C.".

2/ C.C., Art. 2340 (2)-(7); R.C. Arts. 347-349.

3/ C.C., Arts. 2637, 2638 and 2340 (3).

- (ii) water rising and disappearing from sight on one and the same holding 1/;
- (iii) lakes which are not navigable and where, by that token, the Civil Code assigns use and enjoyment to riparians 2/.

B. Groundwater resources

Groundwater belongs to the owner of the land where it is found in the underlying strata 3/. Similarly, groundwater underlying government land belongs to the Government until such time as it is brought to the surface. Ownership is then assigned to whoever so brings it to the surface 4/.

C. Rainwater

Rainwater belongs to the owner of the land on which it falls or into which it enters. The owner may not dispose of it or deviate it in such a way as to cause detriment to lower-lying property 5/; nor, again, may he alter the level of the land in such a way that the water flows across neighbouring land 6/. No ownership is assignable to water falling or flowing in public places 7/.

IV. THE RIGHTS TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

Any right held as indicated in Section III implies that the holder may dispose freely of private water. This right yields only to expropriation on the grounds of public utility.

In order to work public water a decision of the Government to that effect is needed. This may be in the form of a generic permission for everybody to make use of the resource or in a form of permission for a specified category of persons or, again, in the form of a special use allowed under a permit or concession.

Under the law all may engage in shipping, flotation, fishing and the impounding of rainwater falling in public areas 8/.

Likewise deriving from the Act is the right of a landowner to make use of water rising on his property 9/ and of a similar right of any person raising groundwater on public land 10/.

B. Water use authorizations, permits or concessions

Concessions are granted with the following characteristics:

1/ C.C., Art. 2350.

2/ Ibid., Art. 2349.

3/ Ibid., Arts. 2314 and 2518.

4/ R.C., Art. 352.

5/ C.C., Art. 2635.

6/ Ibid., Art. 2634.

7/ Ibid., Art. 2636.

8/ Ibid., Arts. 2343, 2527, 2549, 2641 and 2636.

9/ R.C., Art. 348.

10/ Ibid., Art. 352.

- (i) A source must be available 1/;
- (ii) the only subjective requirement imposed by the law is that the holder be a resident of the Republic 2/;
- (iii) only half the water available in a river or stream may be taken, unless a special law provides otherwise 3/;
- (iv) concessions granted for irrigation purposes may not be made use of for other purposes, for which a fresh concession is needed 4/;
- (v) concessions in respect of floodwater or for the use of water at times of very abundant flow may not be denied 5/;
- (vi) the Government cannot be held responsible for failure or diminution of flow even when the grant is made on the basis of an error 6/;
- (vii) deeds of concession determine case by case their duration, since the Act is silent on this matter;
- (viii) they are granted upon application by the interested party following a public hearing 7/;
- (ix) they cannot be withdrawn, though by a general disposition of the authority they may be restricted or made subject to rules 8/;
- (x) they lapse if the relevant works are not put in hand within six months of the grant 9/, if the conditions attaching to it are not observed or if the rights granted under them are not exercised for three years 10/.

The Rural Code prescribes the following procedures for the grant of concessions:

- (i) The application must contain the following particulars 11/;
 - The name of the owner of the land, the dimensions and location of the latter and an indication of the area that is proposed to irrigate. Similar information is required for applications for uses other than irrigation;
 - an indication of the body of water from which it is proposed to draw; details of the works it is intended to install; the volume of water it is proposed to withdraw expressed in terms of litres per second;
 - the use to which the water will be put;
- (ii) the authorities are required to invite, within thirty days and by means of notices in newspapers and postings in public places, any persons who consider themselves entitled to oppose the application to come forward 12/;

1/ R.C., Art. 366.

2/ Decree-Law No. 3729, of 20.IV.1949, Art. 1.

3/ R.C., Art. 381.

4/ Ibid., Art. 358.

5/ Ibid., Art. 367.

6/ Ibid., Art. 359.

7/ Ibid., Arts. 354 and 355.

8/ Ibid., Arts. 370 and 369.

9/ Ibid., Art. 384.

10/ Ibid., Arts. 360 and 361.

11/ Ibid., Art. 354.

12/ Ibid., Art. 355.

- (iii) a decision is taken on the application once the objections have been examined and the opinion has been sought of the authorities responsible for hygiene, where industrial establishments are concerned 1/.

V. ORDER OF PRIORITIES

A. Among different uses

The Rural Code lays down the following order of preference among the different uses for the concessions for the use of public water 2/:

1. Population supply. Priority is expressed in terms of a minimum allowance of 200 litres per day per inhabitant 3/. In times of freak drought, the Executive may order the appropriation for these purposes of water otherwise intended for uses whose claim is weaker 4/;
2. railways;
3. irrigation;
4. livestock watering.

B. Among different existing rights

Among existing rights preference will be accorded to whoever was first in obtaining the concession. In the case of conduits installed and registered before the introduction of the Rural Code, preference will be given to those rights which were first in time 5/.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

Any person may withdraw from private conduits water for domestic use using hand-carried containers, provided no damage is done to the banks or the watercourse in any way 6/.

Water needed for a population centre and emerging on private land may be expropriated without any special law being required for the purpose 7/. Furthermore, all property will be encumbered with a servitude of aqueduct for the benefit of a population centre requiring the water for domestic purposes 8/. In both cases compensation is payable.

Where with drinking water supply and sewerage facilities are concerned, it is mandatory to be connected with the system in areas where these services are provided 9/.

1/ R.C., Art. 356.

2/ Ibid., Art. 364.

3/ Ibid., Art. 363.

4/ Ibid., Art. 365.

5/ Ibid., Arts. 379 and 380.

6/ Ibid., Art. 390.

7/ C.C., Art. 2637.

8/ Ibid., Art. 3082.

9/ Act No. 531, of 19.IX.1958, Sections 1 and 7; Act No. 713, of 28.VIII.1961, Section 14.

Originally, the municipalities were responsible for urban supply, but the trend toward specialization and the large capital suras laid out for providing this service counselled the setting-up of a government agency to be responsible for this type of use. The agency in the first instance had this jurisdiction for the town of Asunción (in 1954), but its responsibilities were subsequently (1962) extended to the rest of the country.

B. Municipal uses

These uses are governed implicitly by the rules applying to domestic uses referred to in Section A.

C. Agricultural uses

In order to facilitate crop rotation, water concessions are granted for irrigating only 25 percent of the land covered by such a concession. Water may be withdrawn from private conduits for the irrigation of isolated plants by means of hand-carried vessels, provided the banks are not damaged or the watercourse blocked in any way 1/.

Where the source of supply is inadequate the following procedure applies:

- (i) A special regime is declared for the distribution and use of public water 2/;
- (ii) where the shortage is such that it is not possible to provide a sufficient supply for all irrigators, the distribution will be arranged in such a way as to preserve the best or the most important standing crops. In these cases the irrigator aggrieved by the new arrangements will be compensated by whoever benefits therefrom 3/. First preference will be accorded to nurseries, then to crops cultivated along scientific lines and, within this last category, to crops sown on virgin land with selected seed 4/.

The Rural Code prescribes rules for cattle watering on fields other than those of their owner, provided this does not result in a shortage of water for the animals of the owner of that field and provided compensation is paid 5/. The owner of these fields may refuse for animals in transit only the water owned by him that is necessary for his own farming purposes 6/. Livestock may be driven freely across the land of third parties in order to have access to private or public water that it needs 7/. The owner of property encumbered with a servitude of aqueduct enjoys the right of watering his livestock from the conduit itself 8/. If the watering point is located at springs or in rivers or in other watercourses that are neither navigable nor floatable, no riparian may dam or divert the water without the consent of the opposite riparians and of those within a league downstream 9/. In order for a person to obtain a water concession in respect of a man-made watering point, he must have livestock on the holding to which the concession will apply, provided he does not hold another concession already 10/.

In the event of a shortage of water such that not all watering points can be supplied, preference will be accorded to livestock of greater quality, while the beneficiary will be expected to compensate those aggrieved by the arrangement 11/.

1/ R.C., Art. 390.

2/ Decree-Law No. 3729, of 20.IV.1949, Art. 11.

3/ Ibid., Art. 12.

4/ Ibid., Art. 13.

5/ R.C., Art. 270.

6/ Ibid., Art. 271.

7/ Ibid., Arts. 74 and 272.

8/ C.C., Art. 3090.

9/ R.C., Art. 271.

10/ Ibid., Arts. 376 and 377.

11/ Ibid., Art. 378.

D. Fishing

The Civil Code considers fish in navigable lakes and rivers to be res nullius and allows anyone to appropriate them subject to the regulations issued by the authorities 1/, provided no hindrance is caused to shipping or flotation 2/. This last provision exonerates those engaging in navigation from liability for unavoidable damage caused to set nets or other fishery installations 3/. The exercise of a fishing right is limited by prohibitions on:

(i) The use of explosives or poisonous substances likely to cause the massive destruction of fish and any undesirable change in the composition of water in rivers and streams of public use 4/, and nets in the rivers Paraná and Paraguay in the breeding season 5/, and, again, throughout the year in the rivers of the interior 6/;

(ii) fishing in close areas and seasons 7/, or in any enclosed space without the permission of the owner (so doing constitutes a punishable offence 8/), in ponds or private lagoons or, against the wishes of the owner or the concession holder concerned, in waters allocated under concession for a fish breeding establishment 9/.

E. Hydropower

Electric energy is deemed to constitute movable property susceptible of being an object of trade 10/, even though hydroelectric use is not the subject of special legislation and is not even contemplated among the priorities laid down by the Rural Code. Since the National Electricity Undertaking (Administración Nacional de Electricidad - ANDE) enjoys a preferential claim to water use 11/, this circumstance in effect assigns it a monopoly for the electric energy supply service.

F. Industrial and mining uses

The Rural Code empowers the authorities to prohibit the drawing of water for industrial establishments which fail to return it to the rivers or streams or which do so at a place such that the farmer is unable to make use of it 12/ and to restrict this use to the supply of population centres lying upstream of the offtake 13/.

The Mining Code lays down rules designed to secure the protection of canals, watering points and watersheds in general 14/, and makes it obligatory to take measures to counteract seepage from water likely to cause harm to the mining staff 15/, to pay compensation for any damage caused to a "downstream" mine by drainage works 16/ and to make payment for the advantages accruing from the use of the gallery belonging to another for drainage purposes 17/. For mine working purposes servitudes of drainage and for the use of naturally occurring water are granted 18/.

1/ C.C., Arts. 2343, 2527 and 2549.

2/ R.C., Art. 49.

3/ Ibid., Art. 51.

4/ Ibid., Art. 53.

5/ Ibid.

6/ Resolution 108 MAG, of 1.VI.1963.

7/ See Decree No. 18205, of 4.V. 1963.

8/ Criminal Code, Art. 439.

9/ R.C., Arts. 50 and 52.

10/ Act No. 966, of 12.VIII.1964, Section 120.

11/ Ibid., Section 64.

12/ R.C., Art. 373.

13/ Ibid., Art. 374.

14/ Mining Code, Art. 28.

15/ Ibid., Art. 83.

16/ Ibid., Art. 86.

17/ Ibid., Art. 98.

18/ Ibid., Arts. 99 and 100.

Minerals encountered in the beds of rivers and streams may be worked by all, provided the land is not fenced off or the minerals are not granted under express concession for exclusive working 1/.

G. Transport

Whereas the Rural Code places the use of water for navigation at the bottom of the list of priorities, navigation as such enjoys a preferential claim over other uses. This is recognized by several international treaties and by the Civil Code 2/.

Lumber floating is very widely practised and is the subject of detailed rules 3/.

H. Medicinal and thermal uses

Medicinal and thermal uses of water have not been the subject of specific rules, by which token they will be governed by the rules applicable to water in general. However, water susceptible of these uses may be expropriated if the private owners, when requested to do so, fail to work it within two years of being notified 4/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection

When the rivers Paraná and Paraguay are swollen they cause damage not only through overflowing but also because they prevent their tributaries from discharging.

All riparian owners of public channels are entitled to protect their land against the oncoming water provided third parties are not adversely affected thereby. However, a prior authorization is needed whenever the works installed for this purpose encroach on a public channel 5/. Such owners may also remove obstacles, construct defence works and repair those that have been destroyed in order to ensure that the water will be returned to its former state whenever it stagnates, flows more slowly or more impetuously or changes its natural course 6/.

Liability for payment for these works is determined according to whether the adverse effects:

- (i) are attributable to chance or force majeure, in which case the State pays;
- (ii) are attributable to the fact that works have been installed or destroyed by a riparian, in which case the latter pays and makes good the damage he has caused 7/.

Under a rule designed to preclude the overflowing of banks due to the intent of riparians, the latter are prohibited from damming rivers and streams without the consent of the other riparians 8/ or to extend their dams beyond the half way mark of the rivers or streams in question 9/.

1/ Mining Code, Art. 4.

2/ C.C., Arts. 2539-2645.

3/ Decree No. 26524, of 9.I.1963.

4/ R.C., Art. 351.

5/ Ibid., Art. 388.

6/ C.C., Art. 2643.

7/ Ibid., Arts. 2644 and 2579.

8/ Ibid., Art. 2645.

9/ Ibid., Art. 2646.

Any water drawn from private piped supply or other conduit for domestic purposes or for irrigating free-standing plants must be so drawn without causing damage to banks 1/.

Owners of land bordering on non-flowing water retain ownership over the land that becomes flooded 2/.

B. Soil erosion and siltation

The Forests Act declares as being of public utility and subject to expropriation any forest land necessary for halting soil erosion and for regulating and protecting water sheds and springs 3/. It also prohibits the working, felling, damage or destruction of trees and bushes in the vicinity of points where watercourses rise 4/.

Forests and forest land classified as protection areas on the grounds of their capacity for regularizing the water regime, for protecting the soil or banks or rivers, streams, lakes, canals and dams or for preventing erosion, valanches or floods may be put to use only with a view to improving them and in conformity with the regulations 5/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

A. Waste and misuse of water

Any right to draw water from a watercourse is limited to one half of the volume of flow obtaining at the level of the offtake 6/.

B. Pollution

Effluents from population centres must be conveyed to watercourses in such a way that they do not pollute them 7/. Accordingly, the Sanitary Services Corporation (CORPOSANA) has among its terms of reference that of approving individual systems for effluent treatment 8/.

The Ministry of Agriculture has prohibited fishing with explosives or poisonous substances likely to cause the massive destruction of fish and adverse effects on the composition of water and streams of public use 9/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

There are only a limited number of isolated provisions having to do with groundwater.

The Civil Code regulates voluntary servitudes for the drawing of water from wells belonging to third parties 10/ and prescribes a number of measures designed to ensure that such drawing of water shall not result in harm to persons or things 11/.

1/ R.C., Art. 390.

2/ C.C., Art. 2578.

3/ Act No. 422, of 23.XI.1973, Section 22.

4/ Ibid., Section 31.

5/ Ibid., Sections 6 and 33; Decree No. 11681, of 6.I.1975, Art. 49.

6/ R.C., Art. 381.

7/ Act No. 713, of 28.VIII.1961, Section 13.

8/ Ibid.

9/ Resolution No. 323, of 5.XI.1960, Art. 1.

10/ C.C., Arts. 3104-3107.

11/ Ibid., Arts. 2621, 2624, 2632 and 2648.

The Mining Code prescribes a protection radius around springs 1/.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

There is no specific legislation regarding hydraulic installations. Decentralized State bodies install and operate hydroelectric schemes and multipurpose and sanitation schemes.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

There is no specific legislation providing for the declaration of protected areas.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The President of the Republic, the Ministers and the various agencies reporting to the Ministries have the powers described below:

(i) The President of the Republic, acting through the Technical Secretariat for Economic and Social Development Planning, plans and coordinates the implementation of the economic policy, which extends to water matters as well 2/;

(ii) the Ministry of Agriculture provides services for the protection and promotion of crop, animal and forest production, studies the economic resources of the country, provides protection for and control over their exploitation and maintains the relevant agricultural and economic statistics 3/. Subsequent State budgets have enjoined upon the agencies of the Ministry to look to the conservation of fishery resources, to carry out basin protection programmes and to study the effects of climate on agriculture;

(iii) the Ministry of Public Works and Communications is responsible for the geological survey over the country 4/;

(iv) the Ministry of Foreign Affairs is responsible for giving instructions to delegations representing Paraguay on the various international commissions and other bodies dealing with water;

(v) the National Public Water Council is responsible for enforcing water law 5/;

(vi) the Meteorology Department provides the national meteorological services 6/;

(vii) the Hydrography and Navigation Department of the Armed Forces Command carries out hydrographic surveys and controls the hydrographic and hydrometric work done by third parties 7/;

(viii) the Water Supply Department for the Chaco is responsible for dealing with water matters in that region 8/.

1/ Mining Code, Art. 28.

2/ Decree-Law No. 312, of 16.III.1962; Act No. 841 of 14.IX.1962.

3/ Decree No. 13681, of 4.VIII. 1950.

4/ Decree No. 2, of 18.II.1940; Decree-Law No. 17511/71.

5/ Decree-Law No. 3729, of 20.IV.1949.

6/ Decree No. 9926, of 7.XI.1938.

7/ Decree No. 12962, of 8.VI.1942.

8/ Budget Act.

B. At the international level

In Paraguay, virtually all watercourses are international or flow into an international basin. In addition, the greater portion of the country's frontiers lies along rivers.

Paraguay acceded to the juridical and administrative system proposed for the rivers of America by the VII Inter-American Conference, Montevideo (1933), and to that brought into being for the basin of the Río de la Plata by subsequent regional agreements. These agreements are discussed under Argentina, Section XII, D.

Together with Argentina, Paraguay has set up the joint Argentina-Paraguay Commission for the Río Paraná in order to survey their commonly held reach of that river 1/ and the Bi-national Yacyretá Board for the construction and planning of multi-purpose works in the vicinity of the river of that name 2/.

Vessels of all flags may have access to Paraguay by sailing up the Argentine reaches and those reaches where the two States jointly hold the Paraná and Paraguay rivers 3/. With a view to facilitating access Paraguay entered into an agreement with Argentina for the dredging and buoying of these rivers 4/.

With Brazil, Paraguay set up the Bi-national Itaipu Board, whose membership consists of the respective State electricity undertakings, ANDE and ELECTROBRAS, and whose terms of reference concern the use of the shared water resources of the Paraná river between Salto del Guairá and the point where it flows into the Iguazú river 5/.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

The National Electricity Undertaking (ANDE) exists to supply the country's electricity needs and, by exploiting natural resources, promote development and the welfare of the population 6/.

The Sanitary Services Corporation (CORPOSANA) prepares projects, builds, operates and administers sanitation services and formulates plans for drinking water supply and sewerage 7/.

The National Navigation and Ports Board administers and operates all ports and maintains the navigability of rivers 8/.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

A. Government financial participation and reimbursement policies

The State finances most of the costs of hydroelectric schemes, of those for the provision of drinking water and of multipurpose projects. For this purpose it has recourse to loans from international and non-Paraguayan bodies.

1/ Treaty of Buenos Aires, of 16.VI.1971.

2/ Treaty of Asunción, of 3.XII.1973.

3/ Treaties of Buenos Aires, of 3.II.1876 and 24.I.1967 and of Asunción, of 9.I.1872.

4/ Agreement of Buenos Aires, of 10.II.1941.

5/ Treaty of Brasilia, of 23.IV.1973.

6/ Act No. 966, of 12.VIII.1964.

7/ Act No. 1095, of 9.III.1966.

8/ Act No. 1066, of 23.VIII.1965.

Electricity rates are required to cover all costs of operation and to generate additional income for providing the National Electricity Undertaking with the funds that it needs in order to expand its services 1/.

Recovery of the State's outlay is also expected to be assured through the water supply rates and the contribution and tax for conservation payable for sewerage services 2/.

Projects and programmes for crop husbandry, animal husbandry, forestry, industrial and product marketing promotion financed by the National Development Bank also include schemes for piped water supply.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

As pointed out in Section IV, A, the right to use private water can be defeated only on the grounds of expropriation for public utility as provided for generically by several provisions of law 3/. Concessions for the use of public water are irrevocable 4/.

B. Modification, termination and re-allocation of water rights

Notwithstanding the statement made in subsection A, above, whenever a major drought occurs, use and enjoyment rights over water may be restricted and made subject to rules in order the better to provide services to population centres and secure protection of grain crops. In these cases, proportional turns are prescribed for the period of time essential for saving sown crops 5/ and prohibitions may be placed on the drawing of water to irrigate sown pastures or for industrial establishments which fail to return the water to the rivers or streams or if they so return it but at a point where it is impossible to make use of it for irrigation purposes 6/.

In Section VI, C - Agricultural uses - are indicated the principles governing the redistribution of water rights. Redistribution may be resorted to when water is in short supply for irrigation or livestock watering.

C. Water tribunals, courts and other judiciary water authorities

Whenever more than three irrigators are using the same source of water, they will elect by a majority vote a Public Waters Representative Committee, which will decide ex aequo et bono on any disputes arising among them. Appeals lie to the Public Waters Council of the district in question 7/. These committees are empowered to impose fines and call in the police 8/. In all other cases the ordinary Civil Criminal Courts exercise jurisdiction in water matters.

1/ Act No. 966, of 12.VIII.1964, Sections 85, 88, 89 and 126.

2/ Act No. 713, Sections 3, 5 and 19.

3/ R.C., Art. 351.

4/ Ibid., Art. 370, first part.

5/ Ibid., Arts 370-372.

6/ Ibid., Arts. 373 and 374.

7/ Decree-Law No. 3729, of 20. IV. 1949, Art. 3; R.C., Art. 391.

8/ R.C., Art. 397.

D. Penalties

The Criminal Code provides for custodial penalties for the commission of serious offences having to do with water such as the destruction of hydraulic installations, illicit appropriation and causing floods to occur.

Custodial penalties are also imposed for the commission of a number of administrative offences 1/, though the most usual penalty in these cases is the forfeiture of the right in question 2/.

1/ Decree-Law No. 3729, of 20.IV.1949, Arts. 9 and 11.

2/ R.C., Arts. 360, 361 and 384.

PERU

I. INTRODUCTION

Peru is both an Andean and an Amazonian country. It has short, swift-flowing rivers of abundant volume emptying into the Pacific. The upper Amazon basin covers a major portion of its territory. Peru shares with Bolivia lake Titicaca and its catchment basin.

There are three distinct regions; the coastal plain (Costa) between sea and cordillera, the Sierra - highlands comprising the Sierra proper and its valleys- and the Selva jungle. The first is entirely arid, with moderate temperatures; the Sierra is cooler and has variable precipitation; the Selva is hot and humid.

The great differences in elevation of the Pacific watershed favour hydroelectric schemes, while the extreme dryness of most of the territory makes irrigation essential (over a million hectares are under irrigation). In recent years a dynamic fishing industry has developed. Peru is also a major producer of minerals, cotton and sugarcane.

The country has an area of 1 285 200 Km² 1/, and a population (1977 estimate) of fifteen and a half million, about half of whom live in the towns.

What is now Peru was once the centre of the Inca empire and, after conquest by Pizarro in 1533, of Spanish power in South America. Following a number of risings by Indians and mestizos, independence was proclaimed on 28 July 1821. For several years of the XIX century Peru formed a confederation with Bolivia and later waged war against Spain and neighbouring countries.

II. LEGISLATION IN FORCE

The principal sources of law governing water are:

1. The Constitution, of 9.IV.1933, incorporating reforms introduced by Acts Nos. 8237, of 1.IV.1936; 9166, of 5.IX.1940; 9178, of 26.IX.1940; 11874, of 31.X.1952; 12391 of 7.IX.1955. Public ownership of water is established and the principle laid down calling for the determination by Act of the conditions governing use of water by the State or the concession of the resource under ownership or usufruct to individuals (Arts. 33 and 37);
2. the General Water Act, introduced by Decree-Law No. 17752, of 24.VII.1969, which provides comprehensive rules governing this particular subject matter 2/;
3. the Civil Code, approved by Act No. 8305, of 30.VIII.1936, prescribes rules governing ownership and servitudes (Arts. 822 ff);
4. the Land Reform Act, No. 17716, of 24.VI.1969, contains special rules governing the use of water under the Land Reform;
5. the Criminal Code, approved by Act No. 4868, of 11.I.1924, prescribes penalties for the pollution of potable water (Art. 274).

1/ Source: United Nations, Map 2753 (S), May 1974.

2/ In the notes the General Water Act is abbreviated "W.A."

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

All water is the property of the State, and is inalienable and immune from prescription. The General Water Act categorically precludes private ownership or acquired rights where water is concerned 1/, and specifically brings under the public domain atmospheric water, natural and artificial rain, snow and glaciers, natural watercourses, torrents and springs, water flowing in man-made channels, the water in lakes, lagoons and impounding features, whether natural or man-made, groundwater, mineral and medicinal water, waste water, and water from agricultural runoff, seepage and drainage 2/.

Also coming under public ownership are the beds of watercourses, the area occupied by snow and the beds of glaciers, strata where groundwater flows or is otherwise encountered, islands existing or forming in bodies of water, land won from the sea, rivers, lakes, lagoons, swamps and other watercourses or impounded bodies of water, and also the marginal strips bordering thereon and reserved for specified purposes 3/. The Act further declares that all natural waterfalls belong to the State 4/.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

Water may be used in common for primary needs 5/. Where it is necessary in order to satisfy primary vital needs, the Authority prescribes the places and areas of unrestricted access to natural sources or open man-made watercourses, on condition that these are not to be damaged or the water contaminated 6/.

Special water use rights are acquired by permit, authorization or licence 7/.

B. Water use authorizations, permits or concessions

Permits are granted in respect of water surplus to needs, and if a supply is available. In the case of agricultural uses, further conditions apply in terms of specified crops 8/.

Authorizations are granted for services, works or special and temporary operations, and always for a fixed term 9/.

In all other cases use may be made of water only under licence 10/.

Water use is permitted only when it is justified and will proceed in accordance with sound principles. The rules governing water use are summarized below.

- (i) The Executive may reserve water for any purpose in the public interest 11/;

1/ W.A., Section 1; National Constitution, Arts. 33 and 37.

2/ W.A., Section 4.

3/ Ibid., Section 5.

4/ Ibid., Section 52.

5/ Ibid., Section 39.

6/ Ibid.

7/ Ibid., Section 28.

8/ Ibid., Section 29.

9/ Ibid., Section 30.

10/ Ibid., Section 31.

11/ Ibid., Section 7 (1).

- (ii) water may not be used for purposes or in places other than those specified in the grant 1/;
- (iii) the grant is made subject to the condition that third parties are not adversely affected 2/;
- (iv) evidence must be produced to the effect that the proposed use will not cause pollution or loss of water 3/;
- (v) the water must be suitable in quantity, quality and timing for the proposed use 4/;
- (vi) the works installed must be appropriate to the use 5/;
- (vii) the beneficiary is expected to make use of the water efficiently and economically at the place and for the purpose for which the grant was made; to construct and maintain hydraulic installations in an efficient condition; to contribute pro rata to the conservation and upkeep of commonly held works and the provision of those that are needed; to make sure that the water does not cause flooding or extend beyond the impounding structures; to notify the authorities whenever the use of the water covered by the grant is interrupted, save in the case of groundwater that is not used in common; and to comply with the instructions issued by the Authority 6/.
- (viii) the use must be entered in the appropriate register or cadastre 7/;
- (ix) the Authority may suspend the supply of water in order to carry out conservation or improvement programmes or those for the construction of works and other public facilities 8/;
- (x) the Executive may order the substitution of the source of supply by another of similar volume and quality 9/;
- (xi) the use is conditional upon the availability of the water and the effective need for the purpose it is intended to serve and must be exercised in a manner compatible with the social interest and national development 10/;
- (xii) the use is granted in terms of volume 11/, in relation to which the rate will be determined 12/;
- (xiii) the use is subject to a rota or any other system of sharing determined by the authorities 13/;

V. ORDER OF PRIORITIES

A. Among different uses

The General Water Act lays down the following order of preference where the use of this resource is concerned 14/;

1/ W.A., Section 36.

2/ Ibid., Sections 32 (a) and (d), and 20 (d).

3/ Ibid., Section 32 (b).

4/ Ibid., Section 32 (c).

5/ Ibid., Section 32 (e).

6/ Ibid., Section 20.

7/ Ibid., Section 37.

8/ Ibid., Section 38.

9/ Ibid., Section 7 (f).

10/ Ibid., Section 26.

11/ Ibid., Section 11.

12/ Ibid., Section 12.

13/ Ibid., Section 48.

14/ Ibid., Section 27.

1. Primary needs and supply to population centres;
2. animal husbandry;
3. crop husbandry;
4. energy; industry; mining;
5. other.

The use of water for fish farming must not interfere with public use, flotation or navigation 1/; nor may any device or system for the use of the water cause a hindrance to navigation or flotation 2/.

Within each category of uses the Act lays down priorities grounded in the type of use 3/, and the general principle that, in the event of competition between two or more applications for one and the same use, preference will be given to that which best serves the social interest 4/.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

The Water Authority may, jointly with the public health authorities, decide what is best in order that the water shall be accessible to all living beings in sufficient quantity to satisfy primary needs 5/. These uses and those referred to in subsection B, below, enjoy priority, although, of course, limited to primary needs 6/ (see also Section V).

B. Municipal uses

These are legislated for jointly with those described under subsection A, above.

C. Agricultural uses

The Authority prescribes rules for and administers agricultural uses of water in conformity with half-yearly and yearly cropping and irrigation plans 7/. These plans must make allowance for hydrological and agrolological situations, the availability of credit, and market potentials, the directives of the Authority and applications received from users 8/.

The Act provides for the establishment of a compensation scheme for users who, due to shortage of water, are unable to lay down crops 9/.

D. Fishing

Water use rights may be granted in respect of reaches of rivers and other natural channels, parts of lakes, lagoons and natural or man-made impounding features or in the territorial sea for the raising of aquatic species.

1/ W.A., Section 55.

2/ Ibid., Section 56.

3/ Ibid., Sections 40-42, 45, 51, 60, and others.

4/ Ibid., Section 33.

5/ Ibid., Section 39.

6/ Ibid., Section 40.

7/ Ibid., Section 43.

8/ Ibid., Section 44.

9/ Ibid., Section 46.

E. Hydropower

Water used for electric power generation purposes must be restored at the place determined when authorization for such use is granted. In addition, the user must notify the authorities of his plans for drawing water and of any fluctuations in discharges 1/.

F. Industrial and mining uses

These uses are governed by the basic rules prescribed by the Water Act, the Regulations under which require that industries take their water supply if possible from groundwater 2/.

Mine tailings are to be discharged in specially set aside areas or spoil deposits where the necessary control and safety measures are in operation, or are to be removed by means of other systems in such a way that land and water pollution may be avoided 3/.

G. Transport

The Act prohibits any device or system which impedes or otherwise causes hindrance to navigation 4/.

Any person may make use of water on an occasional basis when needed for the vehicle he is driving, provided he does not cause loss or damage to third parties. This use is governed by the rules laid down for "contingent" uses 5/.

Transport undertakings may also obtain a licence for the use of water needed for their services 6/.

H. Medicinal and thermal uses

The use of mineral/medicinal waters is assigned on a priority basis to the State or for thermal establishments or bottling plants under licence issued following public tender 7/.

In all licences it must be laid down as an essential condition that, upon expiry, all constructions, installations and related services shall pass, without any payment having to be made, under State ownership 8/.

I. Recreational uses

Following application to other uses, water may be given over to recreation and tourist purposes, provided this does not interfere with the uses in question and whenever the appropriate public health standards are met. By this token, recreation and tourist centres may be set up provided they do not contaminate the water or jeopardize the principal use in any way 9/.

1/ W.A., Section 53; Regulations under Titles I, II and III, Regs. 89, 136 and 137 (as approved by Supreme Decree No. 261, of 12.XII.1969).

2/ Regulations under the Water Act, Reg. 141.

3/ Ibid., Reg. 54; Mining Code, Art. 66 (d).

4/ W.A., Section 56.

5/ Regulations under the Water Act, Reg. 171.

6/ Ibid., Reg. 170.

7/ W.A., Section 73.

8/ Ibid., Section 77.

9/ Regulations under the Water Act, Reg. 168.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection

In the event of freak spates or other emergencies:

(i) Owners or administrators of land who have to install protection works must notify the Authority within ten days of the emergency arising 1/;

(ii) the Authority may order or itself provide for the installation or demolition of flood control, etc., works 2/;

Once the emergency has passed, the Authority will provide for the removal of works causing any hindrance, the rebuilding of those that have been demolished or the construction of new works as the case requires, the cost of which will be defrayed by those benefitting from these measures 3/.

Riparian owners must allow the installation on the banks of works intended for the protection of other items of property from the action of water 4/.

The Authority is required to determine the type and the characteristics of works by means of which the users will be protecting the banks for the entire reach of the watercourse downstream of, and affected by, the offtake 5/.

B. Soil erosion and siltation

The Authority is required to impose limits on excess irrigation likely to cause damage to agricultural or other land 6/.

C. Drainage and sewerage

The public health authorities may order the installation of drainage works for marshes and other wetlands 7/.

Surveys for irrigation works or any other type of installation which, once in being, may cause seepage damage must include drainage studies 8/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

Any changing of the nature, regime or quality of the water and channels requires authorization which will be granted only if public health is not jeopardized thereby, and provided no loss or damage is caused to the community or to natural resources nor any attempt arises against the national security or sovereignty 9/. Accordingly, the Water Act prohibits the use of the devices or systems which may impede or otherwise interfere with the natural flow of the water, navigation or flotation or, again, may alter the biological conditions of the water to the detriment of the aquatic fauna, or flora, or introduce any modifications in the chemical, physical or biological composition of the water to the detriment of other uses 10/.

1/ W.A., Section 94.

2/ Ibid., Section 95.

3/ Ibid.

4/ Ibid., Section 96.

5/ Ibid., Section 97.

6/ Ibid., Section 50.

7/ Ibid., Section 99.

8/ Ibid., Section 88.

9/ Ibid., Section 14.

10/ Ibid., Section 56.

Permission, again, will not be given for the use of water for the purposes of any land other than that specified in the licence; nor may a permit be transferred to third parties without authorization 1/.

A. Waste and misuse of water

The Authority is required to issue rules and to introduce measures necessary in order to prevent the loss of water due to runoff, seepage, evaporation, flooding, improper use or other causes - this with a view to achieving the greatest possible availability of the water and the greatest degree of efficiency in its use 2/.

The conditions governing the use of water discussed in Section III, B (ii) are also conceived as a means of preventing water waste 3/.

B. Re-use of water; health protection; pollution

The Water Act prohibits the discharging of any solid, liquid or gaseous residue which may pollute water and thereby cause damage or endanger human health or the normal development of the flora or fauna or, again, compromise its use for further purposes.

Discharging is permitted only when the matter discharged is first treated, and provided the conditions of the receiving body of water are conducive to natural purification, and other uses are not thereby jeopardized 4/. It is further prohibited to discharge into the public sewerage systems corrosive residues or those that may destroy the material of which the systems are made or, again, which make the receiving body of water unsuitable for other purposes 5/.

The Criminal Code prescribes custodial penalties for pollution of water intended for human drinking supply or the watering of animals 6/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

A. The licensing of drillers

Any person engaging as his principal or secondary activity in the drilling, digging or other works for prospecting groundwater must obtain a licence from the authorities 7/.

B. Exploration and exploitation licences

Provided an authorization has first been obtained, prospective surveys or works may be undertaken in order to bring groundwater to the surface 8/. For prospecting purposes it is necessary to obtain an authorization, a permit or a licence beforehand as with any other type of water 9/.

Licences here are granted subject to the same conditions as for ordinary licences for the use of water as described in Section III, but subject to further conditions, namely prohibition on the causing of any damage to the aquifer, water table or land

1/ W.A., Sections 36 and 117 (a) and (c).

2/ Ibid., Section 19.

3/ Ibid., Section 20.

4/ Ibid., Section 22.

5/ Ibid., Section 23.

6/ Criminal Code, Art 274.

7/ W.A., Section 68.

8/ Regulations under Title IV of the Water Act, Reg. 16 (as approved by Supreme Decree No. 274, of 30.XII.1969).

9/ W.A., Section 28.

belonging to other persons and lying within the radius of influence of the well, and on any interfering with other wells or sources of water 1/.

As a general principle licences are granted in order to tap water on one's own land. They may also be granted in order to tap water on land of others when the applicant shows that his own land lacks water or that there is some legal impediment to his tapping it 2/.

In order to use groundwater for irrigation purposes it is necessary that technical surveys demonstrate the usefulness or feasibility of the proposal 3/.

On the other hand, licences will be granted on a priority basis for the purposes of regularizing or improving existing irrigation schemes 4/.

C. Groundwater resources protection measures

The Authority prescribes:

(i) The minimum distance between a new well and an existing well, the depth of the new well and the maximum withdrawal rates 5/;

(ii) the working regime of the water as governed by the availability of the resource and the requirements of the cropping and irrigation plan 6/;

(iii) measures necessary to ensure continuity of the use in common whenever the user ceases to operate the well 7/.

The Authority may also order that unsuitable systems or installations be modified 8/.

Studies and plans for works that are likely to have an adverse effect on groundwater must include an evaluation of the impact on such water. The evaluation will require the approval of the authorities 9/.

If anybody undertakes on his own behalf, but not as a systematic activity, drilling or digging by way of prospecting for groundwater he must supply the Authority with information relative to the proposed well 10/. He must also notify the Authority of any discovery of water made in the course of other operations 11/.

Supplementing these specific provisions, the Regulations under the Water Act require any person carrying out works in connection with groundwater to undertake observations and metering, to allow inspections and to supply any information required by the Authority 12/.

1/ W.A., Section 62.

2/ Ibid., Section 63.

3/ Ibid., Section 62.

4/ Ibid.

5/ Ibid., Section 64.

6/ Ibid., Section 65.

7/ Ibid., Section 67.

8/ Ibid., Section 66.

9/ Regulations under Title IV of the Water Act, Reg. 54.

10/ W.A., Section 69.

11/ Ibid., Section 70.

12/ Regulations under Title IV of the Water Act, Reg. 71.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATER WORKS AND STRUCTURES

A. Waterworks construction

Hydraulic installations must be constructed in strict conformity with the characteristics, specifications and conditions laid down in the surveys and plans as approved 1/. The Authority may order the withdrawal, demolition, modification or resiting of any installations not in conformity with such surveys and plans if ever they prove to be a source of harm or damage as a result of changes in the natural features in the light of which their construction was decided and when for technical reasons these expedients are essential for a more efficient use of the water. The beneficiaries of the measures taken are required to compensate for or otherwise make good the cost necessary in order to forestall any losses which the owner of the installations may suffer 2/.

The construction of works for the protection of banks and for flood control was discussed in Section VII, A. The State may undertake protection works for population centres, for modifying the course of rivers and any other works in the general interest or for the public service 3/.

B. Waterworks operation and maintenance

The Authority is required to make provision for the modification, reconstructing or repairing of installations causing problems for water conservation, and may, in addition, modify, restrict or prohibit their operation 4/.

It is prohibited to cause obstruction on access roads to hydraulic installations 5/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

The Executive may reserve water for any purpose in the public interest, reorganize any area, basin or valley and declare protection areas where it may prescribe the limitations and other conditions governing any activities adversely affecting water, and may even prohibit these 6/.

Permits, authorizations or licences for water use in the reserves so established for the protection of soil and water, forests, hunting reserves, parks or national reserves are granted on condition that they are not incompatible, in the view of the authorities, with the purpose of the reserve in question 7/. Moreover, no enlargement in the occupation of land within these areas is allowed 8/.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The Executive and various ministerial agencies have the following terras of reference where water is concerned:

(i) The Executive exercises the powers vested in it under the Water Act to declare reserves, to reorganize any area or basin, to declare protection areas or states

1/ W.A., Section 86.

2/ Ibid., Section 87.

3/ Ibid., Section 98.

4/ Ibid., Section 21.

5/ Ibid., Section 14 (end).

6/ Ibid., Section 7 (a), (b) and (c).

7/ Regulations under the Water Act, as approved by Supreme Decree No. 261, of 12.XII.1969, Regs. 15 and 16.

8/ Ibid., Reg. 17.

of emergency, to authorize the deviation of water from one basin to another, and, in general, make the regulations for the enforcement of the Act 1/;

(ii) the Ministry of Agriculture and Food conducts research and surveys as required, makes rules for the prosecution, punishment and halting of water pollution or water loss, carries out educational activities and affords technical assistance in connection with the need to conserve water 2/. The Executive has also delegated to this Ministry powers to declare reserves, reorganize areas or basins, declare protection areas or emergencies and order transfers of water from one basin to another 3/ determine water use rates 3/, grant licences, permits and authorizations 4/ and, generally, enforce the Water Act 5/;

(iii) the Ministry of Health carries out surveys and research, prescribes measures for the prosecution, punishment and halting of water pollution or water loss, undertakes educational activities and affords technical assistance in connection with the need to conserve water 6/. These terms of reference are the same as those assigned to the Ministry of Agriculture and Food but the Ministry of Health exercises the powers with a view to preserving water quality 7/. In addition, it surveys mineral/medicinal sources, grants licences for their use and control, makes inventories, classifies and gives qualitative determinations thereof, and evaluates their therapeutic, industrial and tourist applications 8/, reviews titles under which the respective sources are worked in order to convert these into licences or to declare their expiry 9/, implements the National Rural Drinking Water Supply Plan, provides for the maintenance of the relevant services and exercises responsibility for the country's environmental sanitation;

(iv) the Ministry of Transport and Communications is responsible for the hydrological control of the river Ucayali;

(v) the Ministry of Energy and Mines evaluates hydroelectric potentials;

(vi) the Ministry of Housing and Construction promotes water supply and sewerage works and, in particular, works for transferring the waters of the Mantaro;

(vii) the Ministry of Fisheries is competent in matters of inland fishing and for fishery and fish farming surveys 11/;

(viii) the Ministry of Foreign Affairs must be consulted by the Ministry of Agriculture and Food on proposals for the use of international non-maritime waters;

(ix) the National Natural Resources Evaluation Office (ONERN) is responsible for the inventorying, classifying and evaluation of water resources and of their present and potential uses 12/;

1/ W.A., Sections 7 and 147.

2/ Ibid., Section 10.

3/ Regulations under the Water Act, as approved by Supreme Decree No. 261, of 12.XII.1969, Reg. 10.

4/ Ibid., Reg. 21.

5/ Ibid., Regs. 112, 134, 140, 144, 154, 156 and others.

6/ W.A., Sections 44, 47, 80 and others.

7/ Ibid., Section 10.

8/ W.A.

9/ Ibid., Section 72.

10/ Ibid., Section 74.

11/ Budget Act 1978, of 29.XII.1977, No. 22049.

12/ Regulations under Titles I, II and III of the Water Act, as approved by Supreme Decree No. 261, of 12.XII.1969, Reg. 35 (2); Decree-Law No. 20588, of 23.IV.1974.

(x) the National Meteorological and Hydrological Service (SENAMHI) carries out and keeps up to date hydrological, meteorological, glaciological and limnological surveys in all basins 1/.

B. At the regional level

The Coordinating Commission for the Marcapomacocha system coordinates water use in Greater Lima.

C. At the local level; water users' associations

Users in each irrigation district are required to set up boards 2/ consisting of representatives of each of the irrigation sectors into which the district is divided, one from the water supply undertakings or, otherwise, one from the users and, in any case, two representatives of the users 3/.

These boards are required to give support to, propose and carry out surveys and works for the optimum use and development of renewable natural resources, to participate in the formulation and implementation of surveys and cropping and irrigation plans 4/, to give their opinion on budgets as presented by the authorities for the preservation and improvement of the basic facilities for irrigation and drainage and to collect fees from users 5/.

On a similar basis are organized the irrigation committees within the respective sectors of a given district 6/.

D. At the international level

In 1933 Peru signed the Declaration of the Seventh Inter-American Conference, Montevideo (see under Argentina, Section XII, D), and in 1978 the Amazon Cooperation Treaty (see under Bolivia, Section XII, D).

With Bolivia, Peru has entered into a succession of Treaties relative to Lake Titicaca (see again under Bolivia, Section XII, D.).

With Ecuador it has set up a Commission to survey the Puyango-Tumbes and the Catamayo-Chira basins 7/.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

A. At the national level

The Empresa Electricidad del Peru evaluates water resources and operates hydroelectric schemes for the purposes of public electricity supply.

B. At the regional or basin level

(i) The Organization for the Development of the Bayovar Scheme provides drinking water supply services in the geographical area under its jurisdiction;

1/ Regulations under Titles I, II and III of the Water, Reg. 35 (3).

2/ W.A., Section 136.

3/ Regulations under Title X of the Water Act, as approved by Supreme Decree No. 495-71-AG, of 1.XII.1971, Regs. 2, 5-8 and 18.

4/ Ibid., Reg. 24.

5/ Ibid., Regs. 17, and 25-31.

6/ Ibid., Regs. 17 and 25-31.

7/ Treaty of 27.IX.1971 and Regulations of 14.VI.1972.

(ii) special sanitation companies are responsible for this service in Lima, Arequipa and Trujillo;

(iii) the Corporación de Energía Eléctrica del Mantaro works the hydroelectric scheme indicated in its name.

C. At the user level

The users' organizations referred to in Section XII, C share in the management of water use, as there indicated.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

The State finances most of the cost of hydraulic installations and has resorted to international loans for this purpose in certain cases.

The users in the respective irrigation districts will pay rates per unit volume of water used which go toward covering the costs of operation and the distribution of the water and in order to finance surveys and hydraulic installations necessary for the development of the area 1/.

Those who benefit directly or indirectly from water regularization works that are installed and paid for out of the public purse are expected to make good the cost in such proportion as the Executive may determine 2/.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

Use rights in being before the introduction of the Water Act must be regularized as regards the permits, authorizations and licences prescribed by that Act 3/, always with due regard to the principle affirmed in Section 1, to the effect that users have no acquired rights in respect of water.

B. Modification, termination and re-allocation of water rights

The authorities may terminate a given use in order that another use enjoying priority may be served (See Section V). In this case the user benefitting from the change will be required to make good any loss sustained by others as a result of such measures 4/; and the Executive may order the reorganization of an area, basin or valley for the better use of the water there 5/.

Water use rights are extinguished upon the accomplishment of the purpose for which they were granted or for the expiry of the term of the authorization 6/, and they may be declared to lapse for the following reasons;

- (i) That the water so granted has not been used;
- (ii) that the rate has not been paid for two successive years;

1/ W.A., Section 12.

2/ Ibid., Section 18.

3/ Ibid., Section 144.

4/ Ibid., Section 35.

5/ Ibid., Section 7(b).

6/ Ibid., Section 115.

- (iii) that the obligations contained in the Water Act have not been complied with.

The Authority may withdraw a water use right if the user 1/:

- (i) makes over to a third party the water covered by the right without being authorized to do so;
- (ii) assigns the water for a use or to a holding other than those stated in the reasons for granting the right, without the relevant authorization;
- (iii) has twice in a two-year period been punished for the same offence.

C. Water tribunals, courts and other judiciary water authorities

The administrative authorities enforce the Water Act. First instance matters lie to the technical management of the irrigation district, whose rulings may be appealed to the Ministry of Agriculture and Food, after which administrative recourse is exhausted 2/.

There are also special agrarian courts of first instance and the Agrarian Tribunal 3/.

D. Penalties

Offences under the Water Act or its regulations are punished with a fine, which may be doubled or even quadrupled in the event of further offences, with a suspension of the water supply 4/ or forfeiture of the rights or their withdrawal 5/, irrespective of any penalties prescribed under the Criminal Code 6/.

1/ Ibid., Section 116.

2/ W.A., Section 117.

3/ Ibid., Section 133.

4/ Ibid., Section 132; Act No. 17716, Chapter II, Title XII.

5/ W.A., Sections 119-123.

6/ Ibid., Section 121; Criminal Code, Arts. 258, 321, 322 and 274.

URUGUAY

I. INTRODUCTION

The Eastern Republic of Uruguay lies at the point where the Basin of the Río de la Plata opens on to the Atlantic. The frontier with Argentina is marked by that river and the Uruguay river. The Cuareim, a tributary of the latter, and the Yaguarón mark the country's frontier with Brazil. The last-mentioned river flows into the Merín Lagoon, across which the Brazil-Uruguay frontier passes.

The terrain is undulating and has no marked gradients. The rivers and streams and the abundant rains account for a humid climate. Seasonal variations in the rainfall regime, however, counsel regularizing runoff patterns.

Uruguay has an area of 186 926 Km² and a population (1975 estimate) of 2 760 000. About a million and a half of the people live in the capital, Montevideo.

This is a traditionally stock-raising country, with crop farming pursued to a lesser degree. Efforts are being made to intensify industry and fisheries. No commercially exploitable fuel deposits have been found.

The territory was a matter of dispute between the Spanish and Portuguese crowns in colonial times and, when the latter came to an end, was incorporated into the Viceroyalty of Río de la Plata. In 1811 self-government was proclaimed. In 1816, Portugal invaded and annexed it to its empire until 1828, when Uruguay's independence was recognized following a war which also saw the intervention of Argentina.

II. LEGISLATION IN FORCE

The principle sources of law where water is concerned are:

1. Title III of the Rural Code, promulgated on 17.VII.1875. This prescribes in detail regarding ownership and use of water. The text is similar to a law of Spain of 1866 but has remained a virtual dead letter. Special Acts have modified the basic principles in this Title 1/;
2. the Civil Code. This prescribes rules governing the ownership of water, servitudes and the juridical effects of the natural action of water (Act No. 917, of 21.I.1878) 2/;
3. the Criminal Code. This makes it an offence to take water unlawfully or to cause pollution (Act No. 1423, of 31.XII.1878; Act No. 2037, of 18.I.1889; Act No. 8673, of 24.IX.1930 and Act No. 1414, of 1.VIII.1934);
4. the Mining Code, which prescribes rules governing the draining of mines, mining servitudes and gold-bearing and tin-bearing deposits;
5. Act No. 10582, of 23.XII.1944. Section 22 brings under the public domain the water of rivers, streams and hydropower sources unused at the time the Act was promulgated ;
6. Act No. 11907, of 19.XII.1952, which institutes the State Sanitation Works Agency;

1/ In the notes Rural Code is abbreviated "R.C.".

2/ In the notes Civil Code is abbreviated "C.C.".

7. Act No. 12091, of 5.I.1954, which reserves cabotage trade to Uruguayan flag vessels;
8. Act No. 4237, of 21.X.1912, which institutes and organizes the General Agency for Electricity Generating Stations and Transmission;
9. Act No. 13667, of 18.VI.1968: the Land and Water Act, which governs agricultural uses of water;
10. Act No. 13737, of 9.I.1969. Section 260 brings under the public domain any water capable of satisfying community needs;
11. Executive Resolution No. 986, of 7.VI.1973, prescribing the definitive text of a Draft Water Code. This was prepared on the basis of a working paper produced by an expert from the United Nations Development Programme.

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

Uruguayan law follows several criteria in assigning ownership of water. In some cases ownership will be governed by the site, in others by considerations of utility; in others, again, by the activities involved in making the water available for use.

A special Act brought under public ownership all water satisfying or capable of satisfying community needs 1/. This provision follows similar criteria to that underlying the Sole Text of the Italian Act on the subject, as did Argentina's Act No. 1771, to revise the Civil Code. However, this special Act has not been enforced so far. A proposal has been made for its repeal on the grounds of its being unconstitutional.

Another Act that brought hydroelectric resources unused up to the time of its approval 2/ under public ownership has been similarly criticized.

Public Works (aqueducts, dams and other impounding features) built and maintained at State expense are public property 3/.

A. Surface water resources

Rainwater flowing in the beds of torrents, gullies and the like or along the public highway is public property. Such water falling and collecting on private land belongs to the landowner for as long as it flows on that land 4/.

Rivers and streams, even where they meet that description for only part of their course, whether naturally or by the hand of man, together with their beds, are public property 5/.

Ports, bays, coves and coastal areas are similarly public property 6/.

Water flowing in natural, publicly owned channels is public property, even when coming from private land 7/.

1/ Act No. 13737, Section 260.

2/ Act No. 10582, Section 22.

3/ Act No. 2059, Sections 1 and 4.

4/ R.C., Arts. 343, 344, 564 ff.

5/ C.C., Art. 478 (3); R.C., Arts. 346 and 392.

6/ Ibid., Art. 478.

7/ R.C., Art. 347.

Water in other rivers and streams and floatable watercourses does not come under public ownership when it is needed for primary vital needs and a public thoroughfare affords access thereto 1/ or for the construction of irrigation and power generation works 2/.

The channels in which rivers and streams, whether floatable or not, flow belong to the riparian owners 3/.

The water to be found under the beds of navigable rivers and streams is public property but may be granted under ownership terms to any person prepared to raise the level at which it will become usable 4/.

Water encountered in depressions in the terrain and in lakes and lagoons receiving publicly owned water and occupying public land is deemed to be public property 5/, whereas lakes, lagoons, depressions and marshes are communally or privately owned according to the land on which they are so encountered 6/, but their channels belong to the riparian owners if not otherwise belonging to the State or, by special title, to some private person 7/.

The water of springs on public land, even where the flow occurs at times of heavy rains, is public property 8/. If it emerges on private land it belongs to the landowner 9/.

B. Groundwater resources

Uruguayan laws give no definition of the ownership of water prior to its extraction. Ownership is attributed, however, depending on the case, to the landowner tapping water by means of ordinary or artesian wells 10/, to the owner of mining works where water is encountered 11/, to the municipality when the water is brought to the surface in areas where public works are proceeding 12/, or, again, to the person discovering it on public land 13/.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

A. Mode of acquisition

The right assigned as described under Section III entitles the holder to dispose freely of private water provided he does not thereby unlawfully cause loss or damage to third parties, or endanger public health or public safety 14/.

The law grants the right to make use of publicly owned water thus:

(i) In common, for navigation 15/, drinking, washing (of things and persons), livestock watering or dipping purposes, subject to the by-laws 16/, and for non-commercial fishing 17/. In canals, conduits and open aqueducts in which public water assigned under concession flows, even where these artefacts are privately owned, anybody may take water by hand but not by means of any machinery or equipment and provided no loss or damage is caused to the owner of the adjoining strip of land. In such cases use may be made of the water only for domestic needs and those of factories or watering of free-standing plants 18/;

1/ R.C. Art. 478 (5) and Art. 346 (3).

2/ Act No. 10582, Section 22.

3/ R.C., Art. 346 (2) and Art. 392.

4/ Ibid., Art. 582.

5/ Ibid., Art. 361.

6/ Ibid.

7/ Ibid., Art. 397.

8/ Ibid., Arts. 347 and 569.

9/ Ibid., Art. 347.

10/ Ibid., Art. 362.

11/ Ibid., Art. 377.

12/ Ibid., Art. 355.

13/ Ibid., Arts. 364 ff.

14/ Ibid., Art. 612.

15/ Ibid., Art. 353.

16/ Ibid., Arts. 506 and 508.

17/ Ibid., Art. 510.

18/ Ibid., Art. 507.

(ii) as an accessory to the right of ownership in respect of land. The landowner may make use:

1. for whatever purpose - of rainwater flowing along any public thoroughfare 1/;
2. for irrigation - of rainwater flowing along any public thoroughfare or publicly owned gully or channel 2/;
3. for irrigating his holding - of water flowing across or forming a boundary to his land provided it does not form a navigable or floatable reach there, for domestic needs and even for industrial plant. In no case may such use result in loss or damage to riparians 3/;
4. for irrigating a riparian holding - of water of navigable watercourses 4/;

In the last two instances, for irrigation by means of major, permanent facilities installed on natural watercourses a concession is required 5/;

(iii) by virtue of use proceeding for thirty years without opposition from the authorities or third parties 6/, for twenty years in the case of surplus water from springs or similar supply points, drainage channels and public establishments in population centres 7/ or from groundwater sources when tapped by third parties 8/ and for one year in the case of spring water 9/;

(iv) under concession or authorization.

B. Water use authorizations, permits or concessions

Any uses of water other than those described above require a concession 10/, which generally will be granted as follows:

(i) by the municipal authorities and, in special cases, by the Executive or the Legislative;

(ii) provided third parties are not aggrieved and ownership rights are not adversely affected. No liability attaches to the authorities for any diminution, for fortuitous causes, in the volume of the water 11/;

(iii) at the request of any interested party and following a public procedure 12/;

(iv) in special cases subject to the payment of a rate or fee, which may be chargeable even upon those who have not applied for a concession 13/;

1/ R.C., Art. 352.

2/ Ibid., Arts. 564 and 565.

3/ Ibid., Art. 351.

4/ Ibid., Art. 572.

5/ Ibid., Art. 573.

6/ Ibid., Art. 533.

7/ Ibid., Art. 380.

8/ Ibid., Art. 381.

9/ Ibid., Art. 358.

10/ Ibid., Arts. 456 and 531; C.C., Art. 580.

11/ R.C., Art. 534.

12/ Ibid., Arts. 554, 561 and 576.

13/ Ibid., Art. 588; Decree No. 5887-48.

(v) specifically for a given use. In these cases the grant may not be applied to another use save with the consent of the authorities 1/. The transfer of ownership of land carrying a concession implies the automatic transfer of the concession;

(vi) with the right of the concession of any land necessary for damming, canal and aqueduct works. Servitudes may also be constituted on private land 2/;

(vii) in cubic metres or litres per second. Where the grant is made with irrigation in view, mention will also be made of the acreage it is proposed to irrigate 3/;

(viii) irrevocably and for the entire term - in certain cases unlimited, as for irrigation, industrial use and fish breeding establishments 4/. Concessions granted to firms providing services to third parties (for irrigation, navigable canals, supplies to urban centres) have a term of up to 99 years 5/.

However, a concession may come to an end before term for the following reasons:

1. Abandonment. The law makes no express provision for this. Nor, on the other hand, does it exclude this concept;
2. lapsing, due to failure to complete the prescribed works within the appointed time limit or for failure to make use of the water for an entire year 6/ ;
3. expropriation on the grounds of public utility with a view to assigning the concession to a different use 7/.

The complex system of concessions introduced by the Rural Code has been in operation for less than a century. On the other hand, recent decades have seen the granting of permits-at-will for tapping water in conformity with the general rules of administrative law, where the specific enactments are silent on the subject.

V. ORDER OF PRIORITIES

A. Among different uses

Any use made of the water of rivers and streams that are navigable or floatable must proceed in such a way that navigability 8/ is not prejudiced in any way. With a view to making such waters navigable or floatable, the Rural Code authorizes the dismantling of irrigation schemes, manufacturing plant and other public works 9/. These and related provisions are indicative of the priority accorded to navigation vis-à-vis other uses.

In the case of concessions for using public water the Rural Code assigns the following priorities:

1. Supply to population centres;
2. supply to railways;
3. irrigation;
4. ship canals;
5. mills and other installations, pontoons and floating bridges;
6. fish breeding establishments.

1/ R.C., Art. 535.

2/ Ibid.

3/ Ibid., Art. 536.

4/ Ibid., Arts. 575, 606 and 611.

5/ Ibid., Arts. 575, 557 and 591.

6/ Ibid., Art. 542.

7/ Ibid., Art. 547.

8/ Ibid., Arts. 524 and 572.

9/ Ibid., Art. 519.

Within the respective categories preference will be given to undertakings considered more important or, where no such distinction can be made, to whichever undertaking was first to apply 1/.

The law is silent as regards water use for electricity generation - a highly important matter in a country with limited energy resources. All the same, the Government has had hydroelectric schemes built on the R o Negro under the terms of special legislation and, together with Argentina, on the R o Uruguay (for the latter river see also subsection C, below).

B. Among different existing rights

Only in exceptional cases does the Rural Code determine the priority of a common use over a concession, or vice versa 2/.

C. Among different areas

In connection with works installed in the lower reaches of the R o Uruguay agreement has been reached with Argentina on the following priorities;

1. Domestic and sanitary use;
2. navigation;
3. energy;
4. irrigation.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

The Rural Code only makes express reference to these uses in order to authorize the drawing of water in common and by hand from canals and conduits 3/ and by the riparian of a stream which does not form a navigable or floatable course 4/.

On the other hand the Code goes into detail regarding the supply of water to population centres. This matter is discussed below.

B. Municipal uses

The following points are to be noted in their regard;

(i) Municipal uses enjoy priority over concessions for other purposes, though they are limited to 50 litres per day per inhabitant plus 20 litres potable water 5/.

This priority means that the authorities may draw water from rivers and streams even to the detriment of uses effected downstream, though compensation must be paid to any person deprived of his legitimately acquired rights, if the prejudice sustained exceeds one twentieth of the water intended for the uses in question. In the last-mentioned event the allocation to the respective users downstream will be reduced proportionally 6/; and even expropriation of privately owned water will be resorted to when there is no public water available permitting ready application to the same purpose 7/. This rule may be invoked on a temporary basis in times of drought 8/.

1/ R.C., Art. 546.

2/ Ibid., Art. 507.

3/ Ibid.

4/ Ibid., Art. 351.

5/ Ibid., Arts. 550 and 551.

6/ Ibid., Art. 552.

7/ Ibid., Art. 553.

8/ Ibid., Art. 554.

A further implication of this priority is that only the Executive may authorize the drawing of water from watercourses which are used for the supply of populations centres and may refuse an application if the proposed use is likely to contaminate the water in question 1/.

Another point to note is that the owner of a lower lying holding who has for twenty years made use of water from run-off acquires a right to such use and may be deprived of this right only by an expropriation order 2/.

(ii) Municipal-type use rights may be granted to private undertakings that provide water supply services for a term of 99 years under conditions established in the concession. This system, however, does not apply in effect because the State Sanitary Works Administration (OSE), which is a decentralized government agency, provides virtually all the services in question.

(iii) The OSE prescribes rules governing the distribution of water within population centres 3/.

C. Agricultural uses

In addition to the use, in common, permitted to owners of specified land, the Rural Code has specific regulations governing concession of water for irrigation purposes. Here the following conditions apply:

(i) The concession is granted to the owner of the land it is intended to irrigate. If the applicant is an undertaking proposing to supply water for irrigation purposes and belonging to third parties against payment of an irrigation rate, the consent of the owners of the land occupying the majority of the irrigated area is required 4/;

(ii) a concession is mandatory in the case of withdrawal of publicly owned water by means of major, permanent works 5/;

(iii) these concessions are granted only when the water gauging statistics for normal years point to availability. In years when the water is in short supply, the longest-standing concessions have the first claim 6/;

(iv) in the case of a landowner the concession is granted in perpetuity, but in the case of undertakings operating canals for supply of irrigation services to third parties the maximum is 99 years. Once the concession expires the facilities pass into the ownership of the irrigation community 7/;

(v) undertakings operating irrigation canals are entitled to levy a rate on all landowners whose land is capable of being irrigated, provided those representing the largest portion of the surface area so consent. Any owner refusing to pay is required to sell his land to the undertaking at the dry farming price and as governed by the fiscal evaluation plus 50 percent 8/;

(vi) these undertakings also have certain privileges such as tax exemption on the entire capital they lay out 9/, the freezing of their taxes for 10 years in respect of land brought under irrigation 10/ and the right to extract materials from the ground, and timber and fodder for their pack and draft animals 11/.

1/ Act No. 11.907, of 19.XII.1952.

2/ R.C., Art. 380.

3/ Act No. 11.907, Section 11(c).

4/ R.C., Art. No. 576.

5/ Ibid., Arts. 573 and 574.

6/ Ibid., Art. 580.

7/ Ibid., Art. 575.

8/ Ibid., Art. 588.

9/ Ibid., Art. 584.

10/ Ibid., Art. 585.

11/ Ibid., Art. 584.

The flooding of rice fields, irrespective of the right under which this is done, at all times requires the permission of the municipal authorities. It may not be carried out less than two kilometres from a village or hamlet and must not produce adverse effects where public health is concerned, in which event this crop would be prohibited 1/.

Where livestock pasturing is concerned, the Rural Code requires owners to maintain a grazing area with a watering point every twenty-five kilometres 2/. It makes subject to expropriation any land necessary for providing watering points along the public highway 3/ and prohibits drilling for groundwater within a protection radius of any watering point 4/. Finally, the Code permits the watering and dipping of livestock as a "common use" 5/.

D. Fishing

Fishing may be engaged in freely in;

- (i) Rivers and streams of public use 6/. The Rural Code prescribes a municipal permit for fishing in navigable rivers and streams 7/;
- (ii) private water, except where the owner expressly prohibits this 8/;
- (iii) aqueducts carrying public water supply. Here fishing may only be done with hook and line, nets or lobster pots, and there must be no obstacle to the flow of the water and no damage done to the banks 9/.

It is also possible for a concession to be granted in perpetuity over water in the public domain for the purpose of forming lakes, ponds and other impounding structures intended for fish farming 10/, or as incidental to a concession for irrigation, navigation or an industrial plant 11/.

Nets and catch may be placed without restriction on riparian land within three metres of the bank 12/.

The foregoing points refer to the use of water for fishing purposes. There is specific legislation governing fisheries and the working of living aquatic resources.

E. Hydropower

The generation of electricity by hydropower is under the responsibility of the Government agency Usinas y Transmisiones Eléctricas (UTE); and there is a two-nation commission engaged in the construction of the hydroelectric dam at Salto Grande on the Uruguay River.

There is no specific legislation governing private hydroelectric uses of water. This activity may be engaged in subject to the general principles laid down in the Rural Code for all water uses and, in certain cases, in conformity with the rules governing industrial uses of water. Here again, the principles contemplated in the Electric Energy Act No. 14694, of 1.IX.1977, will apply.

1/ R.C., Arts, 278-281.

2/ Ibid., Art. 89.

3/ Ibid., Arts. 65, 488 ff.

4/ Ibid., Art. 367.

5/ Ibid., Arts. 507 and 508; cf. also above Section IV, A (i) of this country study.

6/ C.C., Art. 713; R.C., Arts. 122 and 509.

7/ R.C., Art. 513.

8/ Ibid., Arts. 121 and 510.

9/ Ibid., Art. 511.

10/Ibid., Arts. 608 and 611.

11/ Ibid., Art. 610.

12/ Ibid., Art. 504.

F. Industrial and mining uses

In addition to the use in common 1/ allowed to owners of specified land 2/ the Rural Code has particular rules governing concessions of water for industrial purposes. These are granted on condition that no hindrance is caused to navigation, flotation, or existing industrial establishments 3/ and no substances or properties that are harmful to health or to the plant cover are transmitted to the water 4/.

The installation of floating or fixed apparatus or machinery in navigable or floatable watercourses requires the consent of the riparian owner and the authorization of the municipal authorities and must not cause hindrance to shipping or flotation 5/.

Concessions and authorizations may be withdrawn without compensation being payable whenever the floating establishments cause loss or damage to the riparians or whenever shipping or flotation so demands 6/.

Concessions for the use of publicly owned water for industrial establishments are granted in perpetuity 7/.

G. Transport

Division XIX of the Rural Code considers navigation to be a common use enjoying a high degree of protection. Many of its provisions, in fact, prohibit the use of the water of navigable or floatable rivers and streams in such a way as to hinder this use. Other provisions prohibit the construction of works in such rivers or streams if they impede the freedom of passage of boats, rafts or other means of river transport. Any dams that are built must have incorporated into them locks to permit shipping and floating to pass 8/.

A later division of the Rural Code, Division XXIV, prescribes rules governing concessions for the purpose of canalizing a watercourse in order to render it navigable or floatable and to operate the relevant works as a public service. The grant - and the term may not exceed 99 years - requires a legislative Act, and makes it mandatory upon the grantee to ensure continuity of the service and to maintain the works in good condition, under penalty of forfeiture of the concession 9/.

Flotation, too, is not subject to restriction, but authorization is required for it at times when the watercourses are in high flood and whenever this activity is engaged in with the help of movable impounding devices 10/.

The railway undertakings may make use of public water under concession granted by the Executive 11/, draw water from land belonging to third parties under permit from the authorities 12/ and even expropriate privately owned water other than that intended for domestic use 13/.

1/ R.C., Art. 507.

2/ Ibid., Art. 351.

3/ Ibid., Art. 603.

4/ Ibid., Art. 605.

5/ Ibid., Art. 601.

6/ Ibid., Art. 602.

7/ Ibid., Art. 606.

8/ Ibid., Arts. 353, 572 and 524.

9/ Ibid., Arts. 590-592.

10/ Ibid., Art. 523.

11 Ibid., Art. 559.

12/ Ibid., Art. 560.

13/ Ibid., Art. 563.

H. Recreational uses

There is no specific legislation governing the recreational uses of water. However, the respective local authorities have made by-laws governing the use and protection of beaches.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

A. Flood control, overflow and bank protection

Riparians bordering public channels may establish plantations and palisades against the encroachment of water within their property, though they must notify the authorities of so doing. The latter may order the suspension of these works whenever they constitute a risk to navigation or flotation, divert the flow or actually cause flooding 1/.

An authorization is necessary before protection works on channels may be put in hand 2/. An authorization may be general for the entire channel or for only a given reach thereof 3/. Before major protection works which are justified technically are so put in hand, landowners benefitting therefrom may be required to pay for them if the majority (computed on the extent of the land owned by each) consent 4/.

It is permitted to erect temporary works and to destroy existing works in order to prevent or contain imminent flooding, subject to permission from the authority and to payment for any damage thereby caused 5/.

B. Soil erosion and siltation

Farmers are required to adopt such practices as the authorities may prescribe in order to prevent the loss or degradation of the soil or in order to reclaim it, and conserve rainwater 6/.

C. Drainage and sewerage

The owners of lagoons or swampy or marshy land desiring to dry out and reclaim these may, subject to permission from the authorities, take from public land such stone and earth as they consider necessary in order to provide the landfill and any-other works 7/.

Where lagoons or marshy land belong to more than one owner and it is not possible to dry these out only in part, and several owners propose to carry out the reclamation as a joint venture, the Government may oblige all owners to bear collectively the cost of the works, again provided the majority consent to so doing. Such majority consists of persons representing the greater proportion of the reclaimable land. Any owner may avoid paying by surrendering without charge his portion of reclaimable property to the others 8/.

1/ R.C., Art. 415.

2/ Ibid., Art. 416.

3/ Ibid., Art. 418.

4/ Ibid., Art. 419.

5/ Ibid., Art. 422.

6/ Act No. 13.667, of 18.VI.1968, Section 1.

7/ R.C., Art. 426.

8/ Ibid., Art. 427.

Whenever the authorities declare a lagoon or any marshland to be insalubrious, they will proceed with compulsory drying out or reclamation. If the lagoon or land in question is privately owned, the proprietors will be notified of the decision and allowed a time limit within which to take the appropriate measures.

Should the majority of the owners refuse to undertake the drying out, the authorities may give the land to any individual or undertaking offering to perform the task. The land so reclaimed will remain the property of whoever has done so and the original proprietors will be compensated 1/.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

The authorities undertake law enforcement where public water is concerned, and maintain surveillance over privately owned water in the interests of public health and the safety of persons and property 2/. The Rural Code draws certain conclusions from this principle and imposes several restrictions. Thus it:

- (a) prohibits the dumping in river streams or gullies of any material which on decomposing would jeopardize the good quality of the water 3/;
- (b) prescribes regulations governing bathing and drinking by persons and the watering and dipping of livestock and any laundering done in public running water 4/;
- (c) subjects to conditions any washing of objects in canals and conduits so as to ensure that the banks will not be damaged and that the intended use of the water does not call for its being maintained in a pure state 5/;
- (d) requires that if any water right granted for a given use is to be changed to some other use the latter will be subject to the condition that the quality and purity of the water is not adversely affected 6/;
- (e) orders the suspension of industrial operations responsible for the transfer to the water of substances or properties harmful to public health or to the plant cover 7/;

The Criminal Code makes it an offence to pollute or poison any drinking water of common use such as may endanger human life or health and, also, to cause damage to canals, sewers and other water supply and drainage works 8/.

Special decrees may be issued prohibiting the discharging of oils or inflammable substances 9/ and making it obligatory to treat industrial residues 10/.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

Any prospecting for groundwater on public land requires a special and exclusive authorization, which entitles the holder to obtain the concession of any water brought to the surface pursuant to the plan which it is required to submit for this purpose. When a concession is granted it is so granted under terms of ownership 11/.

1/ R.C., Arts. 430 and 431.

2/ Ibid., Art. 612.

3/ Ibid.

4/ Ibid., Arts. 506 and 346.

5/ Ibid., Art. 508.

6/ Ibid., Art. 535.

7/ Ibid., Art. 605.

8/ Ibid., Arts. 218, 266, 267 and 396 (4).

9/ Decree No. 502, of 4.XII. 1962.

10/ Decree of 26.IX.1957.

11/ R.C., Arts. 371 ff.

The concession holder may constitute a servitude of aqueduct and occupy land with hydraulic installations 1/. A concession lapses if the works are allowed to become silted up or the water so encountered is left unused 1), and, as in the case of springs, will be made subservient to the use of the water by the owners of lower-lying land 3/.

Works for the tapping of groundwater must comply with the following restrictions 4/:

- (a) They must respect the protection radius around other wells, ponds, springs and conduits with permanently flowing water;
- (b) artesian wells may not divert or remove publicly owned water from its natural course;
- (c) it is not permitted to sink artesian wells, galleries or the like within a protection radius of buildings, railways, highways, springs or watercourses, or fortifications except under permit. Nor may they be installed within mining claims unless payment is made for any damage caused.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

There is no general legislation on waterworks and related structures, though the Rural Code deals with these when it prescribes rules for the respective uses or special activities having to do with water. In the case of certain major national and international works special rules apply.

It is not permitted to undertake mining works within the protection radius of canals, aqueducts, watering points and springs unless a special permit has been obtained

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

The Soil and Water Conservation Act enjoins upon the Ministry of Agriculture to carry out soil conservation projects either on its own initiative or at the request of farmers working more than half of the area affected by or under the risk of erosion 6/. In such areas, the authorities may impose conservation works or practices, and failure to comply with orders in this regard are punished with heavy taxation increments, eviction or expropriation, as the case may be, and the denial of benefits 7/.

The Forests Act in its turn prohibits any form of working in a national park 8/. In pursuance of these principles a National Lake Park and Multiple-Use Area has been created embracing the José Ignacio, Garzón and Rocha lagoons and the adjacent land separating these from the sea 9/.

1/ R.C., Art. 376.

2/ Ibid., Art. 375.

3/ Ibid., Arts. 347 and 365.

4/ Ibid., Arts. 363, 366, 367 and 370.

5/ Mining Code, Art. 20.

6/ Act No. 13.667, of 18.VI.1968, Sections 7 and 8.

7/ Ibid., Sections 16 ff.

8/ Act No. 13.723, of 16.XII.1968, Section 32.

9/ Decree No. 260, of U.V. 1977.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The office of the President of the Republic and various ministerial agencies have jurisdiction in water matters. Thus:

(i) The President of the Republic. Reporting to his office are:

1. The Secretariat for Planning, Coordination and Extension. In addition to its general functions in the way of planning and coordination, this Secretariat also coordinates national-level bodies active in the development and surveying of natural resources. It develops strategies and national policy for guiding this process and determines the basic criteria governing the selection and evaluation of projects and programmes 1/;
2. the Joint Palmar Commission (COMIPAL). This is responsible for the planning and construction of the Palmar Hydroelectric Scheme on the Río Negro 2/;
3. the commissions appointed to study the draining of the land adjacent to the Laguna Negra and the reclamation of the Carrasco marshes 3/;

(ii) the Ministry of Transport and Public Works. This is competent in matters of public works and those relative to the regime and use of public watercourses and such studies, operations and surveys and advisory services as are called for. Accordingly, the Ministry studies, plans, installs and provides conservation for hydraulic works and administers that Title of the Rural Code which has to do with water 4/. Here the Ministry acts chiefly through its Hydrography Department 5/. As part of its decentralization it has assigned to the Studies Department for the Development of the Río Santa Lucia the functions that the department's name indicates 6/;

(iii) the Ministry of Agriculture and Fisheries. This has jurisdiction in crop and animal husbandry and fisheries, soils, irrigation, drainage and the agricultural uses of water 7/. Its Water Use and Management Department directs the Solís de Matajojo experimental irrigation scheme and carries out investigations on water-land and hydro-climatic relationships affecting irrigation;

(iv) the Ministry of Defence. This is competent in matters of river and lake law enforcement, geographic, geodesic, cartographic and photogrammetric surveys, and the lighting and buoyage of navigable waterways, and meteorology 8/.

Reporting to the High Command of the National Land Forces is a Military Geographic Institute, and to the High Command of the Uruguayan Air Force a Meteorology Department, while to the High Command of the National Navy there report an Océanographie and Hydrographic Service, the Meteorology Department and the Lighting and Buoyage Service;

1/ Decree No. 104, of 24.II.1970.

2/ Decree No. 335/73; Act No. 14.224.

3/ Resolutions Nos. 2098/73 and 2099/73.

4/ Decree No. 574/74, Art. 7.

5/ Decree of 16.X. 1962; Act No. 12.950, Section 2; Decree of 20. IX. 1973.

6/ Resolution of the Ministry of Public Works, of 26.VIII.1968.

7/ Decree No. 574/74, Art. 11.

8/ Ibid., Art. 5.

(v) the Ministry of Education and Culture. This has competence in scientific and educational matters 1/. It has a National Oceanology Commission 2/ and a National Institute for Environment Conservation 3/;

(vi) the Ministry of Industry and Energy. This has competence in matters pertaining to industry, energy, tourism and geology 4/. It has a unit which surveys the aquifers in the north-east of the country, a National Industry Directorate which concerns itself with the disposal of residues, the Eduardo Terra Arocena Geological Institute which carries out geological and hydrogeological surveys in the country, and a Department of Energy which identifies and evaluates primary sources of energy 5/;

(vii) the Ministry of Health. This maintains a programme for drinking water supply to rural communities having less than 1 000 inhabitants 6/;

(viii) the Ministry of Foreign Affairs. Reporting to this Ministry is the National Commission for the Río de la Plata Basin, which is responsible for dealing with a programme of national and international works for the development of the basin 7/ and for coordinating the activities of the delegations of the Government of Uruguay to multinational and bi-national bodies concerned with this same basin.

B. At the local level

(i) Administration and local institutions having competence in matters pertaining to water rights

The local governments enforce their by-laws and provisions affecting public health and hygiene and, by that token, may issue orders designed to prevent flooding, administer sanitation services and provide for the conservation of beaches, and pathways and thoroughfares bordering rivers and streams 8/.

The Rural Code requires these authorities to enforce the rules relating to water in concert with the central Government. Hitherto, however, these provisions have remained dead letter.

(ii) Users' associations

The Rural Code provides for the organization of irrigation communities, in some cases mandatorily 9/, and these may in their turn affiliate in higher-level communities 10/. Each community elects the governing body that will administer it 11/ and determine its own statutes for approval by the Government 12/. Among other powers, the governing body may prescribe rules designed to secure the most efficient distribution and use of the water and may establish a rota system for this purpose 13/. In all cases "downstream" uses and the different categories of users must be represented 14/.

1/ Decree No. 574/74, Art. 6.

2/ Decree No. 420/66; Decree No. 750/74.

3/ Act No. 14.053 of 1971; Decree No. 750/74.

4/ Decree No. 574/74, Art. 8.

5/ Act No. 14.416, Sections 198-201; Decree No. 344/73.

6/ Decree No. 574/74.

7/ Resolution No. 393/68.

8/ Act No. 9.515, Section 35.

9/ R.C., Art. 616.

10/ Ibid., Art. 619.

11/ Ibid., Art. 617.

12/ Ibid., Art. 618.

13/ Ibid., Art. 623.

14/ Ibid., Art. 622.

C. At the international level

Uruguay acceded to the juridical and administrative system introduced for the rivers and lakes of the Region by the VII Inter-American Conference of Montevideo in 1933 and for the Río de la Plata Basin. Most of the national territory lies within the last-mentioned feature. The institutional system here referred to is described under Argentina, Section XII, D. Where the administration of frontier rivers and lakes and the construction and maintenance of works there are concerned, Uruguay has entered into treaties with Argentina and Brazil. The main treaties entered into with Argentina are:

(i) Treaty of 30.XII.1946 concerning the use, damming and derivation of water of the Uruguay River. This treaty sets up the Joint Technical Commission for Salto Grande; the Transitional Agreement of 26.IX.1958 and the amendments thereto of 20.X.1972;

(ii) Treaty of 19.XI.1973, approving the Statutes of, and setting up the Joint Technical Commission for, the Río de la Plata;

(iii) Treaty of 26.II.1975, approving the Statutes of, and setting up the Administrative Commission for, the River Uruguay.

With the Federative Republic of Brazil, Uruguay, by exchange of notes of 26.IV.1963, set up a Joint Technical Commission for the Integral Development of the Basin of the Merín Lagoon (this is discussed under Brazil, Section XII, D).

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

A. At the national level

The greater part of public outlay on hydraulic installations is channelled through the decentralized government agencies. The main ones are:

(i) The Government Agency Usinas y Transmisiones Eléctricas (UTE). This provides electricity supply services throughout the country and operates the hydroelectric schemes at Rincón del Bonete and Rincón de Baygorría;

(ii) State Sanitary Works Administration (OSE). This provides drinking water supply and sewerage services under agreements with the respective municipal authorities. It makes surveys for, installs and maintains works necessary for these purposes and provides law enforcement as regards hygiene where the watercourses that it uses are concerned.

B. At the regional level

The local governments are empowered to provide drinking water supply and sewerage services and to undertake reclamation works 1/.

C. At the project level

The Joint Palmar Commission's terms of reference are to plan and instruct a hydroelectric scheme on the Río Negro 2/.

D. At the user level

The irrigation communities referred to in Section XII, B (ii) are empowered to install and maintain dams and conduits for the service of their members 3/.

1/ Act No. 9.515, Section 35.

2/ Decree No. 335/73; Act No. 14.224.

3/ R.C., Art. 621.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

A. Government financial participation and reimbursement policies

The State finances most of the hydraulic installations through the following:

- (i) The Public Works Treasury 1/, which is funded from irrigation rate receipts and the proceeds from the winning of gravel from the beds of public bodies of water;
- (ii) the public works plans of Usinas y Transmisiones Eléctricas to which are assigned the proceeds from the rates and taxes collected by such bodies for the services they provide.

There is also the Eduardo Terra Arocena Geological Institute, which drills for groundwater, and the National Land Settlement Institute, which provides irrigation water for the settlers under its administration.

While the Rural Code states the general principle that, unless there is express provision to the contrary, hydraulic installations must be constructed, paid for - in advance or by reimbursement - by their users, there are special laws which provide for the shifting of a large proportion of the cost of construction and maintenance to the national budget.

There is no provision for the collection of a rate for the use of water simply as a commodity. The Treaty of 30.XII.1946 with Argentina provides for the sharing of the cost of the two-nation works at Salto Grande thus:

- (i) in equal measure, for the joint works and installations. Provisionally these are to be financed pro rata with the installed power rating assigned to the respective countries;
- (ii) pro rata with the use of the works and installations necessary for navigation taking place upstream of the dam.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

Water use rights where the title is anterior to the introduction of the Rural Code remain in force provided they have actually been exercised. The rights which this Code assigns to all in common enjoy the guarantees attaching to all personal rights, but those which are assigned to a specified category of landowners also enjoy the guarantees attaching to the ownership of immovable property.

Concessions and the right acquired by use over a period of time prescribed by this Code are irrevocable. Concessions of public water for irrigation purposes are granted provided third parties are not aggrieved thereby and subject to respect of ownership rights 2/, and this principle can be extended mutadis mutandis to other uses.

B. Modification, termination and re-allocation of water rights

From what proceeds, it will be seen that the right to use water granted by the Code to landowners can be limited or extinguished only following expropriation.

1/ Acts Nos. 11.925, of 27.III.1953, Section 8; 12.463, of 5.XII.1957, Section 21.

2/ R.C., Art. 532.

3/ Ibid., Art. 534.

Rights deriving from a concession may be expropriated on the grounds of public utility in favour of any use which the Code deems to enjoy priority. In such cases it is not necessary to introduce a new Act, but a special Act is needed in all other cases 1/.

In the case of calamities affecting the community the authorities may claim disposal of public water normally intended for industrial or agricultural applications or of private water, and they must pay compensation for any appreciable grievance caused by so doing 2/. The Rural Code prescribes those cases in which the right to a given use may be modified or extinguished without compensation being payable.

C. Water tribunals, courts and other judiciary water authorities

The Rural Code assigns authority over water to local governments, and in specified cases to the national Executive. It also establishes clearly the terms of reference of the various organs of jurisdiction, thus:

(i) Irrigation juries. Each irrigation community must appoint such a jury. Their terms of reference are limited to "the immediate surveillance of the equitable distribution of water, as determined by the respective rights and to jurisdiction for hearing and settling questions of fact raised in connection with irrigation among the parties in cause" 3/. No such juries have been set up so far;

(ii) the justices of the peace. In addition to their ordinary functions, these are competent to deal with water matters governed by the relevant title of the Rural Code 4/;

(iii) the courts of justice. These are competent to hear:

1. In the first instance: all matters relating to the ownership of public and private water, beaches, channels, hatcheries, servitudes grounded in some civil title, fishing rights, disputes arising between individuals on priority entitlement to water use, and losses or damage caused by such use 5/;
2. in appeal: where this is preferred against rules made by the administrative authorities affecting acquired rights, servitudes governed by the Rural Code, loss and damage arising out of such servitudes, and in expropriation matters 6/;

(iv) the criminal courts. These deal with punishment for crimes involving water (pollution, unlawful appropriation, flooding).

D. Penalties

The usual penalties prescribed by the Rural Code are fines, which may be imposed under the statutes of the irrigation communities 7/, and the forfeiture of rights.

1/ R.C., Art. 547.

2/ Ibid., Art. 548.

3/ Ibid., Art. 627-630.

4/ Ibid., Arts. 411, 487 and 584 (1) etc.

5/ Ibid., Arts. 632-634.

6/ Ibid., Art. 631.

7/ Ibid., Art. 630.

VENEZUELA

I. INTRODUCTION

Venezuela faces onto the Carribean. It is covered to a large extent by the Orinoco Basin, which coincides with what is referred to as the Plains Region. The great river is navigable for some 1 900 km. It forms the frontier with Colombia and is linked to the Río Negro, a tributary of the Amazon, by the Casiquiare canal, and empties through the delta it has formed into the Carribean.

The great Lake Maracaibo communicates with the sea by means of a narrow channel.

The principal orographic features are the Venezuelan Andes, in the west, the coastal cordillera, in the east, and the inland cordillera.

A further characteristic region of Venezuela is Guyana, lying to the south of the Orinoco. This is of granite formation and is covered with impenetrable forest.

The climate is hot in the lower-lying areas and temperate at altitude. There are only two seasons; a rainy season, equivalent to winter, and a dry season, corresponding to summer.

The country's main resource is oil, but a thrusting mining sector is coming to the fore to complement the traditional stock-raising and the working of tropical forests.

The country has an area of 912 050 km² 1/, with a population (1978 estimate) of 12 700 000.

Venezuela was colonized by the Spanish Crown. In the late XVIII and early XIX centuries there were uprisings against colonial rule. In 1810, a home government was formed, and in 1811 a Constitution was introduced. Independence was declared and consolidated following a bitter struggle. Together with Colombia and Ecuador, Venezuela once formed Greater Colombia, which, however, split up in 1830.

II. LEGISLATION IN FORCE

The principal sources of legislation where water is concerned are as follows.

1. The Constitution, of 23.I.1961, enjoins upon the State to protect and conserve natural resources, and provides that the working of these shall be directed primarily to the benefit of the Venezuelan people (Art 106). It assigns to the national authorities the task of conservation, development and use of water (Art. 136 (10)) as well as matters having to do with the conservation and development of crop, animal, fishery and forest production (Ibid., para. (18)) and navigation, wharves and port installations (Ibid., para. (20)), and reserves to the National Congress the decisions in the matter of concessions over natural resources (Art. 126);
2. the Civil Code, enacted on 13.VIII.1942 2/, constitutes the law governing the ownership of water (Arts. 539-543, 650, 652 and 653), alluvion (Arts. 561-563), avulsion (Art. 564), the changing of channel (Art. 569), the formation of islands (Arts. 565-568), servitudes (Arts. 674-680 and 712), limitations on the ownership of land in relation to a watercourse and the right of passage along the banks of navigable rivers and canals (Arts. 644-647) and users' associations (Arts. 735-747).

1/ Source: United Nations, Map 2753 (S), May 1974.

2/ In the notes Civil Code is abbreviated "C.C.".

3. the Criminal Code, of 15.VII.1926, makes it a punishable offence to cause flooding (Arts. 348, 349 and 357), to destroy facilities for communication by waterway (Art. 363), dykes and irrigation works (Art. 475), unlawful appropriation of water (Art. 473) and the cutting of forests providing protection for watersheds from which population centres are supplied (Art. 364);
4. the Forests, Soils and Waters Act, of 30.XII.1965 1/, constitutes the law governing the conservation, development and use of water and other renewable natural resources. The Regulations under this Act were introduced by Decree of 11.II.1969;
5. the Agrarian Reform Act, of 5.III.1960 2/, prescribes the rules governing the use and enjoyment of water within the land reform context (Sections 41-51), prescribes the compilation of a land and water cadastre (Sections 52-56), deals with the conservation of renewable natural resources (Sections 119-124) and prescribes the rules governing the provision of hydraulic installations (Sections 180-189). The Regulations under this Act were introduced by Decree No. 764, on 8.II.1967;
6. the Fisheries Act, of 10.VIII.1944, prescribes the rules governing the use of explosives in water (Section 7), works likely to affect adversely aquatic biological resources (Section 8), the exercise of fishing rights (Section 11) and the contamination of water in such a way as to risk causing adverse effects on aquatic life (Section 24);
7. the Mining Act, of 28.XII.1944, prescribes rules governing the working of minerals of alluvion (Section 44), servitudes and mining uses (Sections 73-81);
8. the Act of 20.VII.1936 prohibits the discharging of hydrocarbon and other oils into water;
9. the Unused and Ejido Lands Act, of 19.VIII.1936, declares waste land under wooded stands protecting bodies of water to be inalienable;
10. the Environment Act, of 15.VI.1976, contains rules governing environment conservation which have an effect on water resources;
11. the Expropriation Act, of 4.XI.1937, as amended on 25.IV.1958, provides for expropriation without prior declaration of public utility in the case of land necessary for irrigation systems and of waterfalls necessary for the installation of hydroelectric generating plant;
12. the police codes of the respective states usually enjoin upon the local police authorities the task of preventing the illegal use of water (e.g. the police codes of the following states: Trujillo, of 29.VI.1957, Arts. 129 and 148; Mérida, of 1954, Arts. 125 and 143; Aragua, of 1954, Art. 127; Guárico, of 1954; Anzoátegui, of 1957; Apure, of 1954; Barinas, of 1954; Portuguesa, of 1954, Arts. 127 and 146; Bolívar, of 1954, Arts. 125 and 144).
13. the Plains Acts of the respective states concerned contain provisions having to do with water especially in connection with livestock use (thus: Guárico, Sections 99 and 116; Cojedes, Section 66; Bolívar, Section 34.; Barinas, Sections 55, 89 and 91; Monagas, Sections 19, 20 and 99; Apure, Sections 106 and 108; Portuguesa, Section 67; and Anzoátegui, Section 10).

III. OWNERSHIP OR OTHER JURIDICAL STATUS OF WATER RESOURCES

The Civil Code declares the following to be immovable property by their nature: lagoons, ponds, springs, cisterns and all running water: aqueducts, canals or conduits

1/ In the notes, this Act is abbreviated "F.S.W.A".

2/ In the notes, this Act is abbreviated "A.R.A".

leading water to any building or land and forming part of the building or land for which the water in question is intended 1/. Accordingly, water may be public and, by that token, inalienable and immune from prescription 2/ or private, in which case it may be susceptible of appropriation by private persons under any right granted under the Civil Code 3/. While this Code does not explicitly identify private water, it prescribes rules such that specified waters may be deemed to come under this legal category.

A. Surface water resources

Lakes, rivers and similar assets are under public ownership 4/.

Water in streams, on the other hand, is deemed to be private water. As Article 652 of the Civil Code refers to natural waters which are not in the public domain, learned opinion has in most cases interpreted this to refer to streams 5/.

The bed of a non-navigable river belongs in equal proportions to the riparians 6/.

B. Groundwater resources

By interpretation, groundwater belongs to the owner of the land where it is encountered 7/. Springs are likewise considered to be private property, by which token the Civil Code authorizes the landowner to make unrestricted use of any spring occurring on his land 8/.

C. Rainwater

Water deriving from rain belongs to the owner of the land where it is encountered as long as it retains that character or derives by natural flow from higher-lying land or forms ponds 9/.

IV. THE RIGHT TO USE WATER OR WATER RIGHTS

Mode of acquisition

(i) Under common use. Scholarly opinion holds that water may be used in common for the necessities of life (drinking, personal hygiene, fishing, navigation).subject to by-laws 10/;

(ii) as an accessory to the right of ownership of immovable property.

The landowner may;

1/ C.C., Art. 527.

2/ Ibid., Art. 543.

3/ Ibid., Art. 1959.

4/ Ibid., Arts. 539 and 540.

5/ cf. Brewer Carias, Allan R., "La Reforma del Régimen Legal de las Aguas" in "Annales Juris Aquarum", Ed. AIDA, Caracas, 1976, Vol. II, tome 2, pages 703-704. For contrary opinion see Casanova, Ramón V., Derecho Agrario Ed. U.L.A., Mérida, 1967, page 275, where waters are referred to as coming under the private domain of the State.

6/ C.C., Art., 539.

7/ Ibid., Arts. 549 and 554; F.S.W.A., Section 90; Brewer Carias, Allan R., op.cit. pp. 705-709.

8/ Brewer Carias, Allan R., op.cit., page 702; Casanova, Ramón V., op.cit., page 278.

9/ C.C., Art. 549; Brewer Carias, Allan R., op.cit., pp. 704-705.

10/ Brewer Carias, Allan R., op.cit., pp. 699, first paragraph and 701, last paragraph.

1. Use for irrigation purposes on his land or for his industrial undertaking any water which forms a boundary with that land or crosses it by natural means, subject to the obligation of restoring any surplus to the normal watercourse 1/.

Where rivers are navigable he may install on their banks pumps or similar devices to draw water needed for irrigation or other use on his land, provided he does not cause hindrance to navigation or to other rational use of the water in question 2/;

2. draw water needed for agricultural or industrial needs and lead it to his land 3/. This right yields to other priority rights 4/, is conditional upon its exercise not interfering with navigation 5/ and upon the dam, spillway and offtake works being approved by the authorities 6/; however, it enjoys priority over water concessions 7/;
3. use the water of rivers rising on his land for as long as they cross such land and provided the rights of third parties are not adversely affected or public health placed at risk. In this case, again, the landowner's right enjoys priority over rights obtaining under a concession 8/;
4. make use of the water emanating from his land provided any rights of the owner of a lower-lying property acquired by title or prescription are not adversely affected 9/, provided he does not divert the course of the water when this supplies an inhabited area or hamlet 10/ and provided no loss or damage is caused to higher lying or lower lying holdings 11/;
5. freely open up wells and drive galleries or tunnels provided these do not interfere with the production of wells already extant on neighbouring land 12/;

(iii) as a servitude. Private water belonging to others may also be used by virtue of a servitude constituted by agreement, prescription or judicial ruling 13/;

(iv) by prescription. The use of water from a spring for a period of time specified by the Civil Code will constitute for the owner of a lower-lying holding a right, which is good against third parties including the owner of the spring itself 14/;

(v) under concession 15/.

B. Water use authorizations, permits or concessions

Concessions are granted with the following general conditions attaching to them:

1/ C.C., Art. 652.

2/ F.S.W.A. Regulations of 1969, Reg. 190.

3/ C.C., Art. 653.

4/ Ibid.

5/ Ibid., Art. 654; F.S.W.A. Regulations, Reg. 190.

6/ F.S.W.A., Section 89.

7/ Ibid., Section 90.

8/ Ibid.

9/ C.C., Arts. 650 and 656.

10/ Ibid., Art. 651.

11/ Ibid., Art. 656.

12/ Ibid., Art. 554; F.S.W.A., Section 94.

13/ C.C., Arts. 712 and 713.

14/ Ibid., Arts. 650 and 656.

15/ F.S.W.A., Section 89.

- (i) They are subject to approval by the National Congress 1/;
- (ii) the water may be assigned for supply to inhabited areas, irrigation, ship canals, railways, hydroelectric power generation and any other agricultural or industrial undertaking 2/;
- (iii) they may be granted against payment or free of charge, as the National Executive deems fit 3/;
- (iv) they are granted subject to the condition that they do not adversely affect third parties 4/ or cause hindrance to navigation or the supply of population centres 5/;
- (v) where the source of supply is inadequate, a rota system will be introduced 6/;
- (vi) their duration may not exceed sixty years 7/;
- (vii) the application must contain the following, inter alia: an identification of the applicant and of the land, including forest land, which will be taken up by the relevant works, together with an undertaking not to use the water for purposes other than those contemplated in the concession; also, a clause whereby the concession holder assumes risks, a waiver of any claim against eviction; an undertaking to restore the water drawn off for electricity generation to its natural channel; the water rate payable; an undertaking to transfer to the Nation, upon expiry of the concession, such works as have been installed; and an indication of the measures it is proposed to take in order to prevent pollution of the water 8/.

V. ORDER OF PRIORITIES

A. Among different uses

- (i) Water in the public domain and private water in excess of the supply volume required for the efficient working of the land where the water is to be found, are assigned to the land reform 9/, for which reason it may be given over to irrigation, domestic uses, services and installations for the working of the land allocated and the operation of agriculture-related industries, including animal husbandry and associated activities 10/.

Excluded from the above-mentioned assignment will be water necessary for the supply of population centres and for other public services; water used for irrigation works installed by private persons provided the land is rationally worked; water in sufficient quantity for the proper working of land reserves; water used for industrial plant; water used by small and medium-sized farms, experiment stations and model farms and water which the National Executive deems to have any other function that is necessary for serving the community 11/, provided that use is effectively made of the water in an efficient manner 12/;

1/ F.S.W.A., Section 92; National Constitution, Art. 126.

2/ F.S.W.A., Section 91.

3/ Ibid., Section 92.

4/ C.C., Art. 682.

5/ F.S.W.A., Section 92.

6/ C.C., Arts. 718 and 739.

7/ F.S.W.A., Section 92.

8/ F.S.W.A. Regulations of 1969, Reg. 192.

9/ A.R.A., Section 42.

10/ Ibid., Section 43.

11/ Ibid., Section 44.

12/ A.R.A. Regulations of 1967, Reg. 25.

(ii) river water may not be used in such a way as to have adverse effects on shipping, nor may works be installed in rivers if they impede the passage of boats or other means of river transport 1/;

(iii) the exercise of fishing rights must not adversely affect economic activities carried on at the same place 2/.

B. Among different existing rights

In connection with the installation and operation of particular works intended to improve and otherwise rationalize the use of the water, preference will be given, in the first place, to prior users and thereafter to the person promoting the scheme 3/.

Where the State newly installs irrigation works the landowner may make use of these for the benefit of the area of land which, prior to their installation, was irrigated in accordance with sound principles, but if such use interferes with the operation of the new system the land may be expropriated 4/.

VI. LEGISLATION ON BENEFICIAL USES OF WATER

A. Domestic and household uses

While the provision of drinking water and sewerage services is the province typically of the municipal authorities 5/, the massive outlay, the technology and the specialized management that these services demand have counselled the creation of a government agency responsible for promoting these facilities. This is the National Sanitary Installations Institute.

B. Municipal uses

No express provision is made for municipal uses, so that the rules governing domestic uses will be applied.

C. Agricultural uses

Agricultural uses are not the subject of separate rules, so that the general principles of water legislation will apply. Projects for crop husbandry, animal husbandry or mixed developments must respect the conservation rules 6/. Livestock placed in unfenced land may water freely on holdings when these too are open 7/.

D. Fishing

The working of living aquatic resources may be undertaken freely as an activity in common 8/, In Section VIII, C are listed the restrictions imposed on fishing and other activities in order to prevent environmental pollution occurring.

E. Hydropower

Although the use of water for hydropower is included among those granted under concession 9/ and the Mining Act allows a mine concession holder to draw, for his specific purposes, water that is publicly owned 10/, no specific rules have been

1/ C.C., Art. 654.

2/ Fisheries Act, of 10.VIII.1944, Section 11.

3/ A.R.A., Section 49.

4/ Ibid., Section 186.

5/ National Constitution, Art. 30; see also Section XIII, C(i).

6/ A.R.A., Section 124.

7/ C.C., Art. 658.

8/ F.S.W.A., Section 48.

9/ Ibid., Section 34.

10/ Mining Act, Section 74.

introduced in this connection. The Civil Code limits itself to prohibiting anything that may create an obstacle or retard the flow of the water, cause flooding or ponding unless this is expressly provided for in the deed of concession 1/. The Regulations under the Forestry, Soils and Water Act, introduced in 1969, require any person who uses water for this purpose to return it to its original channel 2/. The Act places waterfalls under a different ownership regime from that of other property 3/.

F. Industrial and mining uses

Mine concession holders have the following rights:

- (i) To use privately owned water running through their mine or bordering on the claim 4/;
- (ii) to draw off publicly owned water when it is necessary for their undertaking 5/;
- (iii) to make use of water assigned to a prior mining operation when this is necessary for the working of their own mine subject to ensuring a supply of water from other sources to the prior concession holder and compensating him for any adverse effect to his operations that this privilege may give rise to 6/;
- (iv) to impose a servitude of drainage, aqueduct or use of water or any other servitude as a charge on land belonging to others, subject to compensation 7/.

Any water surplus to the needs of a mining undertaking must be restored as prescribed in the concession 8/.

Any person may work alluvial minerals to be found in the beds of rivers under public ownership by panning or similar rudimentary procedures 9/.

VII. LEGISLATION ON HARMFUL EFFECTS OF WATER

Activities likely to degrade water or, as a result of any action affecting the water itself or to degrade the environment, are dealt with in Section VIII, D 10/.

A. Flood control, overflow and bank protection

Owners whose land is adversely affected or is in serious danger of being so affected following any destruction or decommissioning of works installed for protection against the adverse effects of water, or where the accumulation or the collapse of materials impede the flow of the water, may erect such constructions and carry out such repairs as are necessary, provided they do not cause loss or damage to the owner of the land where they take such action 11/.

Owners who derive benefit from the works described are expected to contribute to defray the costs of their provision pro rata with the advantage accruing to them 12/.

1/ C.C., Art. 719.

2/ F.S.W.A. Regulations, Reg. 147 (9).

3/ F.S.W.A. Sections 2 and 33.

4/ Mining Act, Section 71.

5/ Ibid., Section 74.

6/ Ibid., Section 78.

7/ Ibid., Section 74.

8/ Ibid., Section 82.

9/ Ibid., Section 44.

10/ Environment Act, of 15.VI.1976.

11/ C.C., Art. 648.

12/ Ibid., Art. 649.

The authorities may order the provision, in common, of works for the drainage of flooded mines, or mines under threat of flooding 1/.

B. Soil erosion and siltation

Water must be used in such a way as not to cause adverse effects to lower-lying (or higher-lying) holdings as a result of diversions, lowering of levels or ponding 2/.

The National Executive is responsible for the protection of basins against those factors which contribute or are likely to lead to their destruction or impairment 3/. This task it performs in concert with the agencies responsible for the administration of hydraulic installations 4/.

For the same protection purposes, a ban has been introduced on farming activities and on any form of destruction of the plant cover in areas affording protection for bodies of water 5/. The authorities may oblige the owner to reforest any areas that have been so destroyed, even at his own expense 6/. The cutting and burning of forest cover at the headwaters of rivers and streams is subject to regulation 7/. For their part, the owners or persons otherwise in possession of water may oppose any forest clearance likely to diminish the volume of water that they use, and may even demand restocking wherever trees have been felled 8/.

Unused land under wooded cover is inalienable if it provides protection for watersheds or for the headwaters of rivers and streams and for other sources of water when the water in question serves any inhabited or built-up area or an undertaking deemed to be in the public interest and those located less than 200 m from the bodies of water or watercourse mentioned 9/.

The authorities may prohibit the continued stay of inhabitants who make use of renewable natural resources in critical parts of basins 10/ and, where necessary, the grazing of livestock 11/.

A permit from the authorities is required for the installation of livestock fattening centres and for sheep and goat herding 12/.

The preoccupation for conserving wooded stands that protect watersheds is reflected in the Criminal Code as well. This punishes as a serious offence any cutting of woodland providing protection for streams that supply inhabited areas 13/.

C. Drainage and sewerage

Every landowner has the right to dry out his land and to convey surplus water by means of canals or ditches across land separating his own from a watercourse, sewer or other drainage feature 14/.

No person may prevent the reclamation of waterlogged land. However, compensation is payable to whoever has rights over the water removed in that process 15/.

1/ Mining Act, Section 68.

2/ C.C., Art. 681, second proviso.

3/ F.S.W.A., Section 22.

4/ Ibid., Section 23.

5/ Ibid., Sections 18-21 and 110.

6/ Ibid., Section 41.

7/ C.C., Art. 657.

8/ Ibid.

9/ Unused and Ejido Lands Act, of 19.VIII.1936, Section 13.

10/ Ibid., Section 25.

11/ Ibid., Section 37.

12/ Ibid., Section 58.

13/ Criminal Code, Art. 364.

14/ C.C., Art. 677.

15/ Ibid., Art.680.

VIII. LEGISLATION ON WATER USE, QUALITY AND POLLUTION CONTROL

A. Waste and misuse of water

The State is required to make provision for everything conducive to the use of natural resources in accordance with sound, dynamic principles 1/. Water, specifically, is to be used rationally under penalty of suspension or forfeiture of the use right in question 2/.

B. Health protection

The owner of a river headwater may not dispose of his water if in so doing a danger arises for public health 3/. The authorities may adopt all necessary measures such as the occupation and destruction of land on which are to be found sources of water where contamination constitutes a danger to public health 4/.

C. Pollution

Any activity which directly or indirectly pollutes water or otherwise causes it to deteriorate or may lead to the eutrophication of lakes and lagoons is subject to control by the authorities according to the procedure described in Section D, below.

All steps must be taken to prevent the chemical or organic contamination of groundwater from any well, drainage conduit or gallery.

In specified places it is prohibited to discharge into the water petroleum and other oils, ash and any residue or waste from industry that is harmful to the aquatic fauna or which may have an adverse effect on fishing activities or, again, to dump this waste, etc., in places whence they may be naturally washed away by such water 5/. It is also prohibited to discharge petroleum or other oils or fatty substance in waters under Venezuelan jurisdiction 6/.

The National Executive is required to adopt all measures suitable for preserving the condition of the water which is exposed to the effects of the improper use of fertilizers 7/.

An authorization is required before a person may use explosives in water 8/.

D. Environmental protection

Any activity likely to degrade the environment is subject to the control of the authorities, and they will permit such activities which they consider necessary for the economic or social benefits accruing therefrom only when guarantees, procedures and standards for making good any degradation are laid down and can be put into effect 9/. The Environment Act lists these activities identifying them as all those activities which may adversely affect natural ecosystems and the health and welfare of persons 10/.

Any persons engaging in such activities must have the equipment and appropriate technical staff for controlling the contamination that occurs. The qualifications and number of such staff will be governed by the size of the establishment and of the risk attaching to it 11/.

1/ A.R.A. , Section 122.

2/ Ibid., Section 46.

3/ F.S.W.A., Section 90. Section 7.

4/ National Public Health Act of 1942, Section 17.

5/ Fisheries Act, of 10.VIII.1944,Section 24.

6/ Act of 20.VII.1936, Section 24.

7/ Fertilizer Act of 1964, Section 3.

8/ Fisheries Act, of 10.VIII.1944,

9/ Environment Act, of 15.VI.1976, Sections 19 and 21.

10/ Ibid., Section 20.

11/ Ibid., Section 23.

IX. LEGISLATION ON GROUNDWATER RESOURCES USE

The entitlement to open up wells, ditches and galleries for the tapping of any groundwater that the owner has on his land is subject to the following restrictions;

(i) A specified distance must be maintained from neighbouring wells 1/, walls, latrines and water conduits 2/;

(ii) if the well is of the artesian type, the output must be regulated in such a way that the aquifer retains its potential 3/;

(iii) the technical prescriptions laid down by national and local regulations must be complied with 4/.

For tapping groundwater in the Federal District a municipal permit is required. This will not be granted if the drilling will adversely affect domestic water supply service 5/.

X. LEGISLATION ON THE CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

A. Waterworks construction

For the construction of cisterns, wells, sewers and water conduits in the vicinity of a well belonging to another person, the regulation distances and those customary in the locality must be observed and the necessary protection works provided 6/.

Works installed in order to convey water across the land of another must be placed in a suitable position with regard to that land and must not cause damage to the servient property. Compensation must be paid for any damage so caused 7/.

Again, any person opening a water conduit on the land of another must fence off the portion of the land remaining between the ditch and the river both along the bank and along a twenty-five metre-wide lateral strip. If he fails to do so and the omission renders the land unserviceable, he must pay compensation for the damage done together with the value of the land occupied by the re-sited conduit 8/.

Any person conveying water across the land of another must provide the necessary conduit, but the owner of the land in question may require him to have the water conveyed by means of existing canals or canals given over to the conveyance of other water 9/. In this case the conveyance must be achieved in the way most suitable to the place and without adversely affecting, retarding, accelerating or otherwise altering the flow and volume of the water already conveyed by those canals 10/.

1/ F.S.W.A., Section 94.

2/ C.C., Art. 701.

3/ F.S.W.A., Section 94.

4/ Ibid., Section 94; F.S.W.A. Regulations of 1969, Reg. 192; C.C., Art. 701.

5/ Federal District Water Supply Ordinance, of 1960, Art. 4.

6/ C.C., Art. 701.

7/ Ibid., Art. 670.

8/ Police Code of the following States: Trujillo, Arts. 141 and 143; Cojedes, Arts. 13 and 140; Guárico, Arts. 139 and 141; Zulia, Arts. 149 and 151.; Miranda, Arts. 138 and 140; Mérida, Arts. 137 and 139; Anzoátegui, Arts. 139 and 141; Apure, Arts. 139 and 141; Barinas, Arts. 139 and 141; Bolívar, Arts. 137 and 139; Carabobo, Arts. 141 and 143; Falcón, Arts. 141 and 143; Monagas, Arts. 141 and 143 and Esparta, Arts. 139 and 141.

9/ C.C., Art. 667.

10/ Ibid., Art. 668.

Any holder of a right to draw surface water may install a barrage abutting the banks provided he pays compensation and installs the works necessary to protect the land from any danger 1/.

B. Waterworks protection measures

The Criminal Code punishes any person who destroys works for waterway communication 2/, dykes and irrigation works 3/, while the Mining Code prohibits prospection or other mining operations without a permit from the authorities responsible for the conservation of a channel within a distance of less than 50 metres from the latter 4/.

XI. LEGISLATION ON THE DECLARATION OF PROTECTED ZONES OR AREAS

The Forests, Soils and Waters Act declares protection areas 5/:

- (i) within the radius of 200 metres of any spring or headwaters of any watercourse;
- (ii) a strip 300 metres wide on either side of navigable rivers;
- (iii) a 25-metre strip on either side of non-navigable or intermittent watercourses;
- (iv) in the proximity of natural lakes and lagoons to an extent specified by the regulations.

These protection areas may also be declared by Decree of the National Executive whenever necessary by reason of the site or the geographic conditions and for the purposes of environment protection. In these cases there is no obligation to compensate 6/.

Any farming operation or any destruction of the plant cover or, again, any provision of public utility installations in these areas may proceed only in compliance with the regulations 7/ and by permission of the authorities 8/.

Where these areas provide protection for headwaters or the banks of sources of water and streams supplying rivers, the National Executive may make regulations governing the use of private land there 9/.

The National Executive may also declare national water reserves in the case of waterfalls, natural watercourses or accumulations of water under public or private ownership whenever this is justified by the nature, situation or size of these features. The effect of such a declaration is to make them inalienable and to bring any working of them within the purview of technical standards prescribed by the authorities 10/. It is in the exercise of such powers that the Ministry of Agriculture has declared the National Water Reserve of the Río Caroní 11/.

The authorities may also prohibit livestock raising in specified areas 12/.

1/ C.C., Art. 681.

2/ Criminal Code, Art. 363.

3/ Ibid., Art. 475.

4/ Mining Act, Section 127.

5/ F.S.W.A., Section 17.

6/ Ibid., Sections 18 and 20.

7/ Ibid., Section 19.

8/ Ibid., Section 53.

9/ A.R.A., Section 48.

10/ F.S.W.A. Regulations of 1969, Reg. 191.

11/ Resolution No. 246/56.

12/ F.S.W.A., Section 37.

In the reserved areas of rivers, streams, lakes, lagoons and ravines coming within the purview of the Fisheries Act it is prohibited to discharge petroleum or other oils, ash or industrial residues or waste of any kind declared to be harmful to the aquatic fauna or otherwise resulting in adverse effects where fisheries are concerned.

The National Executive may prescribe the unification of the use of any basin or sub-basin, for which purpose it will declare an integrated development area 2/. It may also establish a water reserve on any public water required for this purpose 3/, implying prohibition on the installation of any works for the tapping, diversion, alteration of flow, modification of the channel or other forms of intervention, and any operation which may adversely affect the use of the land in question 4/.

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. At the national level

The powers of the ministries and their agencies are described below:

(i) Principal responsibility in water matters is assigned to the Ministry of the Environment and Renewable Natural Resources. This Ministry, acting through:

- The Department of Information and Research on the Environment, compiles and keeps up to date an inventory of renewable natural resources and their degree of utilization; generates, compiles, studies, centralizes, systematizes, stores and disseminates information relating to such resources and any other elements and factors in the environment, with special reference to basic information on cartography, air photography, geodesics, basic geology, soil science, hydrology, meteorology, hydrogeology and economics, and legal, institutional and any other information relating to the physical aspects of the territory 5/. It also undertakes studies and research 6/;
- the Department of Environmental Planning and Reform assists the National Environment Council in developing the National Plan for the Conservation, Protection and Improvement of the Environment and of Renewable Natural Resources, which covers *inter alia* the National Water Resource Use Plan, and approves applications for permits, authorizations, allocations and concessions for the use of renewable natural resources, occupation of the territory, the installation of works and the engaging in activities capable of degrading the environment 7/;
- the Department for Environment Administration directs, supervises, inspects and controls activities having to do with the improvement and maintenance of environmental quality, and provides for the protection, conservation and rational use of renewable natural resources and other component elements of the environment, the supervision, control and follow-up of permits, authorizations, allocations and concessions granted by the ministry to which it reports, and the administration of water systems and entities 8/;

1/ Fisheries Act, of 10.VIII.1944, Section 24.

2/ A.R.A., Section 182.

3/ Ibid., Section 183.

4/ Ibid., Section 184.

5/ Decree No. 2087, of 22.III.1977, Art. 7 (1) and (2).

6/ Ibid., Art. 4.

7/ Ibid., Art. 8 (1)-(3).

8/ Ibid., Art. 9 (1)-(4) and (7).

- the Department for Basic Facilities develops programmes for works and operations entailed in the provision of such facilities, surveys and plans for works for the conservation, protection and improvement of the environment and renewable natural resources, and executes these plans and operates and maintains the works; installs works supplementary to those coming under basin management programmes; and operates and maintains water supply works 1/;

(ii) the Ministry of Agriculture, too, has responsibilities where water is concerned. Acting through its Department for Fisheries Development it coordinates, directs, controls and evaluates programmes and projects additional to the fisheries development plans and, acting through the Directorate for Irrigation, directs and coordinates all matters having to do with agricultural development in irrigation schemes and land reclamation areas. It also handles programmes for agricultural development carried out in connection with such irrigation schemes 2/;

(iii) the Ministry of Public Works constructs water conduits, sewers, drainage systems, works for irrigation, sanitation, hydroelectric generation and river diversion, the protection of population centres against flood and against other damage deriving from rising water levels, and ports and dams 3/;

(iv) the Ministry of Energy and Mines determines and executes policy for research, development, official control, inspection and conservation of energy resources, among them hydropower resources 4/;

(v) the Ministry of Transport and Communications supervises works, installations and services having to do with transport by waterway 5/;

(vi) the National Water Resources Use Plan Commission (COPLANARH) develops the plan indicated by its name and provides advice on the respective water development programmes carried out by the Government and its agencies or by private persons in connection with public waters 6/;

(vii) the National Environment Council which reports to the Office of the President of the Republic. Its membership consists of representatives of specified ministries, water-related bodies and those of the labour and employer sectors. It develops the national plan for the conservation, protection and improvement of the environment, advises the National Executive on, and collaborates in, the formulation of programmes having to do with the environment which are executed by the respective agencies and administrative branches 7/;

(viii) the Environment Attorney's Office represents the State in civil and administrative prosecutions under the Environment Act, which provides protection for water among other resources, elements and factors making up the environment 8/;

(ix) the Coordinating Committee for Irrigation Works, whose membership consists of representatives of the administrative branches associated with this subject matter, coordinates at the national level the installation and operation of irrigation works 9/. Among its terms of reference is that of planning the appointment of regional committees for each intermediate-level irrigation scheme referred to in subsection B, below.

1/ Decree No. 2087, of 22.III.1977, Art. 10 (1)-(5).

2/ Decree No. 2082, of 22.III.1977.

3/ Statutes of the Ministries, 1971.

4/ Decree No. 2086, of 22.III.1977.

5/ Decree No. 2084, of 22.III.1977.

6/ Decrees Nos. 901, of 18.VIII.1967 and 47, of 7.V.1969, Arts. 1 and 2 and 7-10, respectively.

7/ Environment Act, of 15.VI.1976, Sections 9 and 11.

8/ *Ibid.*, Sections 31, 19 and 20.

9/ A.R.A., Section 197.

B. At the intermediate level

With a view to coordinating the construction and operation of the works in the respective irrigation schemes there have been set up committees for the Río Guárico 1/ and the regions of Unare, Alto Apure, Alto Guárico, Neverí-Manzanares-Cariaco 2/, Cojedes-Sarare-Boconó, El Guárico, El Cenizo, Cariaco, Guanare, Camatagua, Sur del Lago Maracaibo, Guanapito, Delta del Orinoco 3/ and Cojedes-Sarare 4/. These committees coordinate the execution of the integrated development plan for their irrigation scheme and draw up annual execution programmes 5/.

C. At the local level

- (i) Local government and institutions having competence in matters pertaining to water rights

Public health is essentially a matter of municipal jurisdiction 6/. In addition, the basic Acts of the respective states require the municipalities to secure the protection of agriculture, industry and land settlement schemes and to issue ordinances governing water conduits and rivers 7/.

The environment legislation also establishes a local administrative level. It creates boards for the conservation, protection and improvement of the environment, where powers are vested in a municipality, division of the Federal District or portion of the municipality with the task of maintaining surveillance over any forest cover affording protection for water, especially water feeding aqueducts and dams. It provides that there shall be no obstacle to, or retention or diversion of, the water from its natural channel without the persons responsible also observing the technical rules laid down by the Ministry, that the water shall not be contaminated, and that beaches and banks of rivers shall be used in conformity with the regulations. These boards act on behalf of the Environment Attorney's Office 8/;

- (ii) users' associations

Users' associations may be constituted in order to exercise, maintain and defend rights held in common 9/, thus:

1. They may be set up on voluntary basis, by the decision of a specified minimum number of users or by order of the National Executive 10/;
2. the Statutes must be in writing 11/;
3. decisions are taken on a majority, as provided in the respective rules of procedure 12/;

1/ Decree No. 278/65, Art. 1.

2/ Decree No. 1314/69, Art. 1.

3/ Regulations for irrigation works coordinating committees, 1968.

4/ Decree No. 1032/69.

5/ *Ibid.*, Art. 2.

6/ National Constitution, Art. 30.

7/ E.g. State of Anzoátegui, Art. 20 (19); and Zulia, *ibid.*

8/ Environment Act, 15.VI.1976, Sections 16, 17 and 32; Decree No. 2127, of 18.IV.1977, Arts. 2, 8 and 13 (1), (4), (5), (11) and (13).

9/ C.C., Art. 744, first proviso.

10/ A.R.A., Section 50.

11/ C.C., Art. 744, end.

12/ *Ibid.*, Art. 745.

4. they may bring together and use jointly the water from one and the same source or contiguous water under public ownership; they may install irrigation works and those for the generation of motive power, seek funds for this purpose and acquire immovable property 1/;
5. they are governed by the rules applying to companies and unincorporated partnerships 2);
6. they may be wound up if members holding three quarters of the shares have agree 3/;
7. they have corporate status 4/.

D. At the international level

Venezuela, Colombia and Ecuador have recognized reciprocal rights for the freedom of navigation on their rivers 5/.

The Statute of the frontier regime instituted by convention with Colombia limits the fishing rights of the respective States to the median line of non-navigable rivers and watercourses, prohibits the separation of the frontier waters by means of fixed nets or any other object impeding the passage of fish from one bank to the other, and fishing with explosives, and stunning or any other device or procedure which destroys fish 6/.

Venezuela is also signatory to the Amazon Cooperation Treaty. The main features of the latter were summarized under Bolivia, Section XII, D.

At the July 1976 meeting between the Presidents of Venezuela and of Colombia, it was agreed to set up a joint mission for the harmonious development of the basins which the countries share on the Zulia, Catatumbo, Meta, Arauca and Orinoco rivers.

XIII. SPECIAL AND AUTONOMOUS WATER RESOURCES DEVELOPMENT AGENCIES

A. At the national level

(i) The National Agrarian Institute is responsible for enforcing The Agrarian Reform Act]_/_ and, in particular, to administer the minor irrigation systems 8/;

(ii) the National Sanitation Works Institute (INOS) provides drinking water supply and sewerage services in the municipalities which accept these 9/;

(iii) the National Canalization Institute makes preliminary studies for, finances, constructs, maintains, inspects, improves and administers major navigable waterways in lakes and rivers 10/;

(iv) the Electricity Administration and Promotion Company (CADAFE) is a self-governing State limited company which supplies electric services. For this purpose it surveys hydroelectric resources, plans their harnessing and secures their use in accordance with sound principles;

1/ A.R.A., Sections 50 and 51.

2/ C.C., Art. 747.

3/ Ibid., Art. 746.

4/ A.R.A., Section 51.

5/ Treaties of 15.VI.1916, Bogotá, and of 5.IV.1941, Cúcuta.

6/ Convention of 5.VIII.1942, Arts. XXII and XXIII.

7/ A.R.A., Sections 154 ff.

8/ A.R.A. Regulations of 1947, Reg. 27.

9/ Decrees Nos. 71, of 15.IV.1943, and 104, of 22.V.1943.

10/ Decree No. 422/52.

(v) the agency known as the Electrificación del Caroni operates the hydroelectric scheme of that name. This scheme supplies nearly half the electricity consumed in the country;

(vi) the Agricultural Credit Institute caters for the financial needs of farmers, among them those regarding basic facilities, irrigation schemes and assistance for protection against rain and flooding 1/;

(vii) the Agricultural Development Bank caters for the financial needs of independent farmers, among them the provision of watering points;

(viii) the National Reforestation Company carries out afforestation and reforestation programmes. These encompass the protection of watersheds and the extraction of timber from areas which it is intended will be flooded for dams 2/.

(ix) the Venezuelan Development Corporation contributes to the financing of private irrigation works 3/.

B. At the regional level

(i) The Corporación Venezolana de Guayana is responsible for the development of the region of that name and of the Orinoco delta, thereby implying water resources development 4/;

(ii) the Corporación de los Andes (CORPOANDES) is responsible for the integrated development of the Andean region. Development here includes irrigation, hydroelectric and natural resources conservation schemes 5/;

(iii) the Development Corporations for the Zulia Region, for the North-Eastern Region and for the Central-Western Region develop and promote hydroelectric planning as part of their overall terras of reference.

C. At the user level

Users' associations referred to in Section XII, C (ii) may come together and make joint use of public water from one and the same source or adjacent sources.

XIV. LEGISLATION ON WATER RESOURCES DEVELOPMENT FINANCING

A. Government financial participation and reimbursement policies

The State finances the bulk of the cost of hydraulic installations and recovers its outlay in part.

By way of support to the agrarian reform process there has been set up a State Supervised Credit Scheme which provides aid for, inter alia, drainage, irrigation, resource conservation works, watering points and wells 6/.

B. Water rates and charges

The general principle applies whereby the use of water obtained from State owned works shall be paid for, though there are exceptions to this rule 7/. Fees are

1/ Acts of 2.VI.1974 and 6.VIII.1976.

2/ Decree No. 1341, of 16.XII.1975.

3/ Executive Decree No. 798, of U.V.1975.

4/ Decree No. 430/60.

5/ Act of 8.XII. 1964.

6/ A.R.A., Sections 109 and 112 (6).

7/ Ibid., Section 189.

payable for the use of canalization and beaconing installations 1/. The electricity rate contributes to covering the cost of the basic works such as the hydroelectric schemes, while the regulations governing the drinking water supply and sewerage services usually require that the cost of the relevant works be made good.

Payment may be required for the use of water if the Executive so decides 2/, in which case the applicant must undertake to pay a specified rate 3/.

XV. WATER LAW IMPLEMENTATION

A. Juridical protection of existing water rights

Upon declaration of public utility in respect of watercourses and waterfalls which could be used for their energy potential and other natural resources which the Forests, Soils and Waters Act contemplates in terms of basin protection, it becomes lawful to expropriate or withdraw water rights without further legislation being needed 4/.

B. Modification, termination and re-allocation of water rights

The authorities may modify rights to use publicly owned water whenever (a) this is necessary for domestic use or public service or for the agrarian reform, (b) they prescribe the rules governing the use of any watercourse, impounding feature or collective use or (c) the flow of any source of supply diminishes. In these cases any user who is demonstrably aggrieved will be compensated 5/.

C. Water tribunals, courts and other judiciary water authorities

Water juries, consisting of local residents chosen by the authorities from a list drawn up by the users themselves and of representatives of the ministries having responsibilities in the matter, establish irrigation rotas 6/. Their decision may be appealed to the appropriate ministry and are enforceable by the ordinary courts 7/.

The State of Lara assigns to a water magistrate, who is elected each year by the users within the respective basins, has powers to rule on the sharing of public water there 8/.

D. Penalties.

Besides the penalties contemplated in the Criminal Code for serious offences involving water, fines 9/, custodial penalties 10/, and the suspension or forfeiture of rights are imposed for lesser offences 11/. The penalties introduced by the Environment Act are backed up by safety measures to prevent the adverse consequences of the prohibited act. These include the occupation of sources of pollution, the closure of establishments, the prohibition of harmful activities and injunctions to modify or dismantle facilities 12/.

1/ Resolutions of the Ministry of Mines and Hydrocarbons Nos. 1044/63, 1186/63, 1187/63, and others.

2/ F.S.W.A., Section 35.

3/ F.S.W.A. Regulations of 1969, Reg. 163.

4/ F.S.W.A., Section 2.

5/ A.R.A., Section 47.

6/ F.S.W.A. Regulations of 1969, Reg. 194.

7/ F.S.W.A., Section 93.

8/ Police Code, 1954, Arts. 202-207.

9/ F.S.W.A., Section 122; State of Lara Police Code, Arts. 215-218; Environment Act, Section 24.

10/ F.S.W.A., Sections 19 and 110; Environment Act, Section 24.

11/ A.R.A., Section 46.

12/ Environment Act, Sections 25 and 26.