



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

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

**Marine Waters and River Basin Management in  
Politically Decentralised Countries**

Griselda Capaldo

Professor in the Law Faculty at the University of Buenos Aires  
Scientific Researcher for the CONICET (Argentina)  
Researcher for the Institute of Legal and Social Research A. L. Gioja  
University of Buenos Aires (UBA)

## **Abstract**

This work analyses how to prevent the pollution of the marine environment from land-based sources, particularly that caused by river basins discharging their water into the South Atlantic. To tackle this issue, the topic is examined at both a local level (Argentina, Bolivia, Brazil, Paraguay, and Uruguay) and at a regional level (La Plata Basin and MERCOSUR). The research is divided into three sections. In the first two, a comparative-analogical study is carried out with the purpose of detecting symmetries or asymmetries, which – in the third section – will show the degree of difficulty that the group of States will have to protect the sea and its biota not only from anthropic activities developed along the coastline but also those coming from rivers. The first section examines the local rules of the five countries mentioned above that are directly or indirectly connected with the protection of the marine environment from water sources. This methodological strategy aims to weigh and compare the degree of coherence or incongruence between the jurisdictions. The second section explores the degree of symmetry -or asymmetry- attained by the five riparian countries of La Plata Basin (four of them being members of the MERCOSUR) through those bilateral, regional and international environmental treaties -directly or indirectly connected with the protection of the marine environment- that they have ratified or accepted.

The third section details how the degree of legal harmony (but not necessarily of governance) achieved by the five States of La Plata Basin over the last seventy five years could be used as a legal platform for common actions for the protection of the South Atlantic marine environment. The section concludes with the description of two possible scenarios for action: the first which presents an optimal solution and the second a less ideal outcome.

## **Key words**

Water basins – pollution of the marine environment – La Plata Basin – MERCOSUR

## **I. - Introduction**

Interest in considering the pollution of the marine environment from river basins first appeared in the international sphere. Since 1967 and through the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), the scientific community has noted the dual role played by oceans and their coastlines as providers of natural resources and environmental services, as well as the anthropic sources that pollute them from coasts. As regards the first, thanks to research based on 100 studies undertaken over the last two decades, it has been estimated that the global value of goods and services supplied by marine and coastal ecosystems is nearly US\$23 trillion per year – almost the world's GNP. As regards the second, it is known that the main source of marine pollution comes from the dumping of urban, industrial and agricultural solid and liquid waste and, to a lesser degree, from the rivers emptying into the sea.

Therefore, the topic analysed in this paper has a complex and pluri-focal structure.

To tackle the problem, the international community – through the *Regional Seas Programme* and the *Global Programme of Action* (GPA) designed and monitored by the UN Environment Programme (UNEP) since 1974 and 1995 respectively – is devoting great efforts to protect oceans by identifying and regulating those land-based activities that are harmful to the marine zones. In brief, the GPA aims to prevent the degradation of the marine environment through the development of fully comprehensive directives at three levels: international, national and regional. According to statistics, 80% of the ocean pollution comes from coastal-based activities carried out up to 100 km inland. This area could extend even further if the pollution carried along rivers that run down to seas is taken into account. The growing alteration and destruction of coastal-marine habitats and ecosystems; the increase in and diffusion of processes of eutrophication; the reduction in fishing grounds and other renewable resources; and changes in the volume of sediments due to water variations, are evidences of such environmental pressure.

In the seventh extraordinary session held in Cartagena de las Indias, from 13 to 15 February 2002, UNEP endorsed decision SS.VII/6 through which the Work Programme was approved. The Programme emphasises the urgent need to integrate the management and protection of coastal resources with an appropriate administration of watersheds.

The key points of the Work Programme are: the NPA (National Programmes of Action), the SAP Wastewater (Strategic Action Plan on Municipal Wastewater), the PADH (Physical Alteration and Destruction of Habitats), and the ICARM (Integrated Coastal Area and River Basin Management). Additionally, the following actions can also be added: the PAO (Public Awareness and Outreach), the GPA's Clearing-House Mechanism and a number of special tools, such as the legal and institutional agreements, innovative financial agreements, and the Integrated Coastal Area and River Basin Management (ICARM).

In turn, the main aims of the ICARM are:

- to implement an integrated management of river basin and coastal systems, limiting the use of natural resources; and
- to promote multi-sectoral integration at all levels in decision-making, linking the large scale management to necessary intervention at local levels.

Taking into account that La Plata Basin – with an area of 3.1 million km<sup>2</sup> – is the fifth largest drainage area in the world and the second largest in South America<sup>1</sup> and considering that it empties an average of 23,000 m<sup>3</sup> of water per second into the Atlantic Ocean (MENÉNDEZ et RE, 2005), what will be examined in the following section is the degree of harmony, or asymmetry, between the national rules of the five riparian States to prevent and control the pollution of the marine environment from watersheds. The author's purpose is to ascertain if the degree of harmony is so high as to facilitate integrated policies and actions for the water basin, linking large scale management with necessary interventions at local levels, in order to avoid the degradation of the marine environment in this area of the South Atlantic Ocean from La Plata Basin – whose waters receive large amounts of raw waste, industrial and urban effluents, dredging, run-off, and, spills from shipping activities (KURUCZ, 1997).

## **II. – Water Regulation in the Riparian States of La Plata Basin**

In this section, the environmental rules that have been passed by each of the five riparian states of La Plata Basin (see Map 1) related to water law will be listed and briefly described. The author's aim is to detect what principles, obligations and goals are repeatedly enshrined by national legislation so as to discern their degree of consistency or inconsistency. Considering the amount of information, only the highest level rules will receive attention – starting with the constitutional provisions.

### **1. - The Environmental Clause in the Constitutions of the Riparian States of La Plata Basin**

This part analyses and compares the environmental provisions in the Constitutions of Argentina, Bolivia, Brazil, Paraguay and Uruguay. The Constitutions of Uruguay and Bolivia address environmental issues rather sparingly, while those of Brazil and Paraguay are more complete. That of Argentina falls between the two extremes.

All of them have similar provisions for the defence, conservation and preservation of the environment, but only those of Argentina and Brazil have enshrined the principle of inter-generational responsibility. The other States do this through lower level rules,

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<sup>1</sup> The area occupied by the basin is roughly one third of the size of the United States and is almost as large as the area occupied by the European Union.

whereas Uruguay and Paraguay are the only ones that have expressly recognised the right of access to drinking water as a human right in rules of derivative law.

With the exception of Bolivia, the Constitutions include the obligation of any polluter to compensate for, and redress, environmental damage. However, only those of Paraguay and Brazil specifically refer to environmental offences or crimes. Bolivia does this through Chapter VI of Law 1333/92 on the Environment, while Argentina and Uruguay do the same but within their Criminal Codes.

The Constitutions of Argentina, Brazil and Paraguay allude to ecological balance and propose an ecosystem-based focus (even more detailed in the Constitutions of the latter two), also protecting collective environmental rights and allowing their protection through collective action (called “*acción de amparo*” in the Constitutions of Argentina and Paraguay).

This same group of countries constitutionally guarantees the right to both environmental information and education.

With the exception of Uruguay, the rest of the Constitutions acknowledge the rights of the native communities to defend, manage and preserve those habitats that they have traditionally occupied. The Constitution of Paraguay even gives priority to the application of indigenous common law when it is a matter of resolving disputes that have arisen between different tribes.

The Brazilian Constitution includes specific rules on the evaluation of environmental impact and water resource management, while only the Paraguayan has provisions for environmental disasters or calamities.

Surface water and groundwater are explicitly considered as public property in the Constitutions of Brazil and Bolivia, and implicitly in the Argentinean highest law (this is inferred from article 124, which sets forth that “The natural resources existing in the territories of the province are part of their domain”). An identical policy has been adopted by Paraguay and Bolivia, but through lower level rules.

Lastly, none of the countries has specific provisions regarding the prevention and protection of the marine environment from pollution from land-based sources (or even water sources). Only Brazil alludes to the duty to preserve the environment and the natural resources of the coastal zone (article 225.4).

## **2. - Water Law in National Legislation**

The objective of this part is to undertake a comparative-synchronised analysis of water related issues in the legislation of La Plata basin's riparian States.

#### **A) Argentina**

Argentina is a federal country comprising a national government, 23 Provinces and one Autonomous City (Buenos Aires). The distribution of the administrative, legislative and jurisdictional competences between Nation and Provinces is undertaken according to article 121 of the Constitution. The Provinces maintain the powers not delegated by the Constitution to the Federal Government and those that have expressly been reserved for special agreements at the time of their incorporation into the Republic.

As regards preservation of water and water resources, Argentina has the General Environment Law No. 25675/02, Act No. 25688/02 on Environmental Water Management, Act No. 23879/90 (as amended in 1995 and 2004) on Environmental Impact Assessment for Dams, Act No. 24354/94 relative to the National System of Public Investment, whose two appendices call for Environmental Impact Assessments (EIAs) for ports and navigable channels -among other assessable activities, and Act No. 25831/04 on Free Access to Public Environmental Information.

As a common denominator, this set of rules enshrined the following principles, rights and obligations: **(1)** preservation, conservation, restoration and improvement of the quality of natural and cultural environmental resources; **(2)** social participation in decision making processes; **(3)** rational and sustainable use of natural resources; **(4)** conservation of biological diversity; **(5)** the inter-generational principle; **(6)** the right to information; **(7)** the right to environmental education; **(8)** minimising environmental risks; **(9)** restoration of damage caused by environmental pollution; **(10)** the precautionary principle; **(11)** environmental territorial planning; **(12)** the principle of legal congruence between provincial and municipal legislation in matters addressing environmental issues; **(13)** the principle of progression, meaning that the environmental objectives should be reached gradually; and **(14)** liability for damage caused to the environment.

In addition, Act No. 25688/02 on Environmental Water Management requires unity in the environmental management of watersheds and the obligation of managing transboundary watersheds through Basin Committees. In turn, Law 25675/02 creates an Environmental Compensation Fund to be supervised by each provincial authority.

Argentina does not have specific federal legislation for coastal-marine management or for the prevention of marine pollution from water sources. The country only participates in two UN Programme for Development (UNDP) projects – one of them jointly with Uruguay – related to the integrated management of coasts and riversides.

## **B) Bolivia**

Bolivia is a unitary country, with 9 Departments subdivided into 112 Provinces. Its main water related rules are the Water Act of 1906, Act No. 1333/92 for the Environment, Act No. 1604/94 for Electricity, Act No. 2066/00 for Basic Sanitation, and the Supreme Decrees 24716/97 for Water Sector Concessions and 24176/95 which passed three Rules for Environmental Management, Prevention and Environmental Control (it regulates, among others things, EIAs), and Water Pollution.

All of these have the following principles, rights and obligations in common: **(1)** protection, prevention and conservation of the environment and natural resources; **(2)** promotion of sustainable development; **(3)** the principle of intergenerational responsibility; **(4)** conservation of biological diversity; **(5)** optimisation and rationalisation of the use of water, air, ground and other renewable natural resources guaranteeing their long-term availability; **(6)** the right to environmental education; **(7)** territorial planning, through ecological, economic, social and cultural zoning; **(8)** creation and maintenance of environmental heritage accounts; **(9)** standardising national environmental policies according to international ones; **(10)** promotion and fostering of scientific and technological research related to the environment and natural resources; **(11)** organisation, updating and divulging national environmental information; **(12)** promotion of actions for environmental sanitation, ensuring the provision of basic services to urban and rural populations; **(13)** the right to participate in environmental management, and the duty to take care of it; **(14)** the right to receive accurate and sufficient environmental information; **(15)** monitoring environmental quality; **(16)** mitigation and avoidance of negative environmental impacts that may be caused by any project, work, or activity; and **(17)** compensation for the damage caused by environmental pollution.

Act 1333 has a couple of Chapters on Water (Ch. II) and Hydro-biological Resources (Ch. VII) which underline the integrated management of basins as geographical-units. They also control the dumping of any liquid, solid or gaseous substance or waste that pollutes or may pollute the water or degrade its surroundings. Additionally, a National

Fund for the Environment (FONAMA) is created under the control of the Bolivian President (article 87).

In summary, the management of water resources in this land-locked State is decentralised, and participative (DEL CARPIO, 2005). Last but not least, Bolivia recognises the rights of indigenous communities to undertake sustainable management of water resources, respecting their own native authorities, uses, customs, rights and traditional knowledge (DEL CARPIO, 2005).

### **C) Brazil**

Brazil is a federal republic divided into 26 States and one Federal District (Brasilia). The legal treatment of water and water resources is addressed by the Water Code of 1934 (Decree-law 24643), Act No. 9433/77 on National Water Policy, Act No. 6938/81 on National Environmental Policy, Act No. 9605/98 on Crimes Against the Environment, Act No. 9984/00 through which the National Water Agency was created, and Act No. 7661/88 on National Coastal Management Plan.

This constellation of laws have the following principles, rights and obligations in common: **(1)** the principle of intergenerational responsibility; **(2)** promotion of sustainable uses of water; **(3)** preservation, improvement and recuperation of environmental quality; **(4)** compensation for damage caused to the environment and water resources; **(5)** adoption of measures necessary to prevent critical environmental and water events; **(6)** responsibility for the damage caused to the environment, and to assets of value (including aesthetic and tourist value); **(7)** prevention and minimisation of environmental damage, as well as the effects of droughts or flooding; **(8)** control of water pollution; **(9)** the right to environmental information; **(10)** the right to environmental education; **(11)** maintenance of ecological balance; **(12)** environmental territorial planning and social and economic development; **(13)** the duty to preserve the areas that are most representative of the ecosystems; **(14)** social participation in environmental management; and **(15)** the principle of rational and integrated use of water, soil, subsoil and air.

In Brazil, water resource management is decentralised and participative through the Basin Committees. In addition, water is considered as a limited natural resource, with economic value, and multiple uses.

Brazil has specific legislation for coastal-marine management (Act No. 7661/88, which created the National Coastal Management Plan). Although this rule aims for the



conservation and protection of water, estuary and lagoon systems as well as the natural resources – renewable or not – in the coastal region, the scope of its spatial application could be extended up to the ocean, because, based on its subject matter, it also includes coastal and oceanic islands as well as headlands and marine grottoes.

Similarly to Argentina and Uruguay, Brazil is also implementing a UNEP programme concerning integrated coastal management.

#### **D) Paraguay**

Paraguay is a unitary country, divided into autonomous Departments and Municipalities. Until mid-2007, water issues were dispersed among a dozen rules. That year, Act 3239 relating to Water Resources of Paraguay was passed, and its regulation is still under consideration. Obviously, this law operates with others relating to water management, such as Act 294/93 on EIA (required, among other activities, for hydraulic and port works, and for aqueducts in general), Act 352/94 on Wild Protected Areas (amongst whose objectives is the preservation and management of water basins and wetlands, as well as controlling their erosion and sedimentation), and the Agrarian Statute passed by Act 1863/01.

All of these have the following principles, rights and obligations in common: **(1)** management and sustainable, rational and integrated use of water and natural resources; **(2)** protection, conservation and restoration of lands on which water resources are found; **(3)** harmonious balance between the environment and public or private interests; **(4)** criterion of unity in basin management; **(5)** guaranteeing the human right of access to drinking water; **(6)** minimisation of the adverse effects or damage to the environment; **(7)** social, environmental and economic value of water resources; **(8)** systemic approach to water basins; **(9)** the right to environmental information; **(10)** public participation in environmental and water resource management; **(11)** the principle of intergenerational responsibility; **(12)** protection of the environment against the effects of climate change, flooding and salinization; **(13)** harmonisation of environmental law with international treaties and agreements ratified by Paraguay; **(14)** protection of ecological flows; and **(15)** responsibility for damage caused to the environment.

Due to its uniqueness, it is worth remembering that in Paraguay the right to use water resources cannot be granted or transferred to a foreign State or its representatives (article 14, Act 3239).

## **E) Uruguay**

Uruguay is a unitary country, comprising 19 autonomous Departments. Water resources is ruled by the Water Code, passed by decree-law 14859/78 (as amended in 1987 and 1991), Act No. 16466/94 on EIA (necessary for sewage waters, ports, hydrological works,), and Act No. 17283/00 on Environmental Protection.

All of these have the following principles, rights and obligations in common: **(1)** avoidance of any action that may cause destruction or serious pollution to the environment; **(2)** responsibility for the damage caused to the environment; **(3)** compensation for damage caused to the environment; **(4)** the duty of adopting all the measures necessary to prevent, eliminate and mitigate negative environmental impacts; **(5)** public participation in environmental management; **(6)** sustainable development; **(7)** the principle of intergenerational responsibility; **(8)** the right to a healthy, balanced environment; **(9)** economic and social development shall be based on an environmental approach; **(10)** the principle of graduality; **(11)** the right to environmental information; **(12)** the right to environmental education; **(13)** environmental territorial planning; and **(14)** the obligation to consider watersheds as management units.

Uruguayan legislation also enshrines the principle of regional and international environmental cooperation, the recognition of the cross-sectoral nature of environmental management and the duty to conserve both the form and the structure of the Uruguayan coast.

The ECOPLATA Project, agreed to Uruguay and Canada in 1991 (through the International Research Centre for Canadian Development), for capacity building and the development of sea sciences and coastal areas. On the other hand, the Integrated Coastal Zone Management,<sup>2</sup> begun in 1997, aims to achieve the sustainable development of coastal areas. Its objective is to consolidate an efficient protection of the most sensitive areas and ensure the sustainability of the various social and productive uses of coasts.

## **III. Water Regulation in International Treaties In Force Amongst the Riparian States of La Plata Basin**

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<sup>2</sup> It comprises the Ministry of Housing, Territorial Organisation and Environment, the University of the Republic, the National Aquatic Resources Management (DINARA) and the Navy Oceanographic, Water and Meteorological Service.

In this section, the main international environmental rules relating to water that have been adopted by the riparian countries of La Plata Basin will be described. The main goal is to examine how consistent is the bundle of international commitments taken by the riparian States with regard to the sustainable and integrated management of the Basin.

## **1. Multilateral Agreements Referring to Water Resources**

The First Pan-American Conference, held in Washington in 1889 adopted a series of recommendations, one of the most outstanding being the right of the riparian States of transboundary basins to use as much water as needed provided that this did not cause detrimental effects to the interests of the other riparian States. In 1933, during the Seventh Inter-American Conference, 14 Central and South American countries subscribed to the Montevideo Declaration on Agricultural and Cattle Uses of International Rivers. The duty to inform other riparian States before undertaking any work or study on a shared river is a recommended practice. Otherwise, the affected country may start –under protest– a conciliation process to resolve the dispute through a joint technical commission. If the agreement is not possible, the dispute shall be settled via conciliation, or via the special procedure determined in the treaties in force in America or, lastly, via arbitration. This Declaration was applied by Bolivia and Chile between 1939 and 1962 to decide the dispute which had arisen over the Lauca River. Another regional milestone was the Charter of Punta del Este, signed in 1961, whereby the American countries acknowledged the crucial importance of having access to sufficient drinking water for people (ALLENDE, 1971).

From the 1960s onwards, the five riparian States of La Plata Basin (Argentina, Bolivia, Brazil, Paraguay, and Uruguay) have endorsed a series of mutual commitments to ensure a harmonious and balanced development of the region in general and of La Plata River and its tributaries in particular.

The first step was taken in 1967 with the creation of the Intergovernmental Coordination Committee for La Plata Basin countries (CIC, in Spanish).

The second step was taken in 1968 the Santa Cruz de la Sierra Declaration, the primary objective of which is to preserve access to goods and services for future generations through: **(1)** maximum harvesting of natural resources (Preamble, paragraph 3; and Section II.C.1); and **(2)** promoting shared projects to inventory and evaluate the natural resources of the Basin (Sections II.A.3 and II.A.7).

The next was the adoption of La Plata Basin Treaty in 1969, wherein the CIC was established as its permanent agency (article 3). Its main objective is to promote the harmonious development and physical integration of the Basin, as well as of those areas which directly and considerably affect it (article 1). To this end, the riparian States of La Plata Basin committed to: **(1)** undertake a rational use of water resources, particularly through multiple and equitable use (article 1.b); **(2)** preserve and foster animal and plant life (article 1.c); **(3)** cooperate in areas of education, health and the fight against diseases (article 1.g); **(4)** promote the inventory, appraisal and use of natural resources in the area (article 1.h); **(5)** develop collective actions while respecting international law and according to best practice between neighbouring, friendly countries (article 5); **(6)** maintain the navigable condition of rivers (article 1.a and 1.d); **(7)** achieve other goals referring to the watershed development through specific or partial, bilateral or multilateral agreements (article 6); **(8)** adopt decisions unanimously (article 2, paragraph 3); and **(9)** preserve the natural resources of the region for future generations (Preamble).

In 1971, the same group of States signed the Asunción Declaration for the Use of International Rivers whereby it is recognised: **(1)** the State can use as much water as her needs require provided that it does not cause a significant harm to the other State (First Principle); **(2)** the States will exchange information (Third Principle); **(3)** the States will maintain the navigability of rivers (Fifth Principle); and **(4)** the States will adopt the necessary measures to preserve the basin's living resources (Seventh Principle).

In 1992, as a result of successive Resolutions unanimously adopted since 1987, the same countries adopted the Santa Cruz de la Sierra Agreement on the Fluvial Transport along the HIDROVIA Paraná-Paraguay and its six Additional Protocols. Although the Agreement is inserted within the scope of La Plata Basin Treaty (article 1), it has its own institutional organisation (the Intergovernmental Committee of the HIDROVIA–CIH in Spanish, and the Agreement Committee –CA in Spanish). The CIC and the CIH run separately and independently (articles 22 to 25). Due to the fact that there is no interaction between them, the integrated management of the watershed is a pending issue (CAPALDO, 2003). The Agreement pays attention to: **(1)** the creation of a community of interests, efficient and common, based on equal rights and obligations of the riparian countries (Preamble); **(2)** protection of the environment, health and public order, in accordance with the respective internal legislation (article 34); **(3)** the duty of not affecting the safety of navigation, third parties, or the environment when

undertaking operations to remove temporary obstacles to navigation (article 38 of the Additional Protocol for Navigation and Safety); (4) the obligation of shipowners to report the pollution of the waters to the respective authority in each country (article 58 of the Additional Protocol for Navigation and Safety); (5) protection, preservation and conservation of the waters, human health, the biota and the natural resources of the Paraguay-Paraná Waterway, as well as minimising, controlling and avoiding its pollution (articles 82 to 101 of the Additional Protocol for Navigation and Safety); (6) adoption of measures necessary to prevent, reduce and control the pollution of the waters caused by ships and their operations in the Waterway (articles 82 to 101 of the Additional Protocol for Navigation and Safety); (7) maintenance of the navigability of the rivers (articles 1 to 36 of the Agreement and articles 35 to 39 of the Additional Protocol for Navigation and Safety); (8) exchange information about navigation safety, water pollution and about any rule that each State may have passed relating to the prevention of pollution incidents (articles 51, 58 and 96 of the Additional Protocol for Navigation and Safety); (9) making the State responsible for the activities undertaken in its jurisdictional waters to the extent they may impair or obstruct navigation or threaten damage to third parties or to the environment (article 39 of the Additional Protocol for Navigation and Safety).

## **2. MERCOSUR and the Environment**

Nine years later, in 2001, the four riparian Basin States who are also members of MERCOSUR (Argentina, Brazil, Paraguay, and Uruguay) signed the Framework Agreement on the Environment (in force since 2004). The signatories committed themselves to: (1) protecting the environment and the use of available resources through coordinating policies, based on principles of graduality, flexibility and equilibrium (article 3.a); (2) fostering sustainable development (article 1, article 3.c); (3) promoting effective participation of civil society in environmental matters (article 3.e); (4) incorporating environmental aspects into common policies of the MERCOSUR (articles 3.b and 6.b); (5) cooperating in the fulfilment of the international environmental agreements endorsed by MERCOSUR's members and implementing the principles of the 1992 Rio Declaration (articles 2 and 5); (6) participation of national agencies and civil society in analysing the environmental problems of the sub-region (article 6, first paragraph); (7) harmonising environmental legislation (article 6.a and 6.c); (8) exchanging information (article 6.a); (9) preventing, controlling and mitigating

environmental impacts, especially in boundary zones (article 6.j); **(10)** fostering environmental education (article 6.l); **(11)** considering cultural aspects, when necessary, in the decision-making process relating to environmental matters (article 6.m).

This Framework Agreement has an Additional Protocol for Cooperation and Assistance during Environmental Emergencies, signed in 2001, not yet in force.

Groundwater or confined or semi-confined aquifers, such as the Guaraní, are not addressed here since the topic is beyond the scope of this paper.

### **3. Other Environmental Agreements**

The five member States of La Plata Basin have also endorsed a large number of environmental treaties in force<sup>3</sup> as well as bilateral cooperation treaties<sup>4</sup> that establish: **(1)** sustainable development; **(2)** environmental cooperation; **(3)** data exchange; **(4)** protection and preservation of ecosystems; **(5)** prevention, reduction and control of pollution; **(6)** prevention and mitigation of other conditions detrimental to the environment; and **(7)** the precautionary and polluter-payer principles.

### **4. Relevant Actions in the Area of Coastal Management**

Over the last 35 years, UNEP has been coordinating different Regional Seas Programmes to control the degradation of oceans and coastal zones through a series of legal strategies and specific actions in sustainable management.

More than 140 countries participate in 13 Regional Seas Programmes coordinated by UNEP. All of them are in force through the following regional treaties: for the

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<sup>3</sup> For example, the most relevant include the 1971 Ramsar Convention (in 22 I.L.M. 698); the 1982 UN Convention on the Law of the Sea (UN Doc. A/CONF.62/122, reprinted in 21 I.L.M. 1261); the 1985 Convention on the Protection of the Ozone Layer (in 22 I.L.M. 698 and UNTS, Vol 1513, p 293) and its 1987 Montreal Protocol with London, Copenhagen and Montreal amendments (26 I.L.M. 1529 and 1550); the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989 (28 I.L.M. 657); the 1992 Framework Agreement on Climate Change (31 I.L.M. 849) and the Kyoto Protocol of 1997, (available at: <http://www.unfccc.int>); the Convention on Biological Diversity (31 I.L.M. 322); the 1994 Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification (available at: <http://sedac.ciesin.org/pidb/texts-menu.html>).

<sup>4</sup> The Environmental Cooperation Treaty, 1 June 1997, signed by Argentina and Bolivia (passed by Act 24774/97, Argentina); the 1996 Environmental Cooperation Treaty, 9 April 1996, signed by Argentina and Brazil (passed by Act 24930/97, Argentina); the 1989 Agreement on Evaluation and Control of Ichthyic Resources and of Waters Quality of Paraná River, 26 April 1989 (available at Ministry of Foreign Affairs of Argentina, Treaties Section – DM/DT/N.R. 5) signed by Argentina and Paraguay; and the 1997 Agreement on the Rules Applicable to Control the Waters Quality of Uruguay River, 5 November 1997, signed by Argentina and Uruguay (accessible at <http://www.parlamento.gub.uy/htmlstat/consgenerica/consleyes.asp>).

Mediterranean Sea (**MAP**), for the Wider Caribbean (**CAR**), for the Coastal and Marine Areas in Central and West Africa (**WACAF**), the Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (**EAF**), the Protection and Development Plan for the Marine and Coastal Areas in the Region of the East Asian Seas (**EAS**), the Management and Development of the Marine and Coastal Environment Programme for the North-East Pacific Region (**NOWPAP**), a Protection Plan signed by the Regional Organisation for the Protection of the Marine Environment -Kuwait Region (**ROPME-KAP**), an Action Plan for the South-East Pacific (**SE/PCF**), a Conservation Plan for the Marine and Coastal Areas Environment in the Red Sea and the Gulf of Aden (**RED**), an Environmental Management Plan for the South Pacific Region (**SPREP**), the Environmental Programme for the Black Sea (**BLACK**), the Protection and Management Plan for the Seas in the South Asian Seas (**SAS**), the Integrated Environmental Programme for the Baltic Sea (**BALTIC**), and the Action Programme for the North-East Atlantic Region (**OSPAR**), and programmes for the Antarctic, the Arctic, the Caspian Sea and for the Northwest Atlantic.

Argentina, Brazil and Uruguay have coastal management plans financed by international bodies. In contrast with the Regional Seas Programmes, none of these countries protect the marine environment from land-based activities (LBAs) through binding agreements.

From 2002 up to 30 June 2008, Argentina implemented the UNDP ARG 02/018 project, co-financed by the Global Environmental Facility (GEF). The project includes the Argentina's Patagonian coast and involves the Federal Government, the Provinces of Río Negro, Chubut, Santa Cruz and Tierra del Fuego, Antarctic and South Atlantic Islands, together with the Argentina Coastal Guard (PNA, in Spanish) and the Hydrological Naval Service (SHN, in Spanish). As was mentioned above, it is aimed exclusively at the conservation of the Argentine Patagonian coast. In other words, nearly 2,000 km of Buenos Aires coastline was excluded from the project, where coastal strip is exposed to the highest anthropic pressure.

Since 1999 Argentina and Uruguay developed the FREPLATA Project (PNUD/GEF/RLA99/G31, for the Environmental Protection of La Plata River and its Corresponding Maritime Boundary: Prevention and Control of Pollution and Habitat Restoration), the origins of which date back to the First Bi-national Argentine-

Uruguayan Meeting – on the Prevention of Pollution along the Maritime Boundary– called by the Joint Technical Commission for the Maritime Boundary (CTMFM, in Spanish) in 1993.

The environmental importance of this Project is based on the fact that it covers the Buenos Aires coast ignored by the PNUD ARG 02/018 project. To the north of this coast, on the Buenos Aires Metropolitan Area (AMBA, in Spanish), La Plata Basin drains. The AMBA is a geographical area that groups together the city of Buenos Aires and 32 surrounding Municipalities of the homonymous province. The AMBA covers less than 1% of the total area of the country, where 12 million people live – some 33% of the national population. It is also the setting for one of the most important industrial and petrochemical centres in the country – where 50% of the GDP is generated. There are more than 100 clandestine dumpsites and the dumping of effluents and pollutants into the river and its tributaries has little State control.

The FREPLATA Project coexists with the ECOPLATA Project, that begun in 1989 thanks to a General Cooperation Agreement for Development between Uruguay and Canada. Currently ECOPLATA is in its III stage and its primary objective is to create a conceptual model for the Integrated Management of the Coastal Areas of La Plata River.

Brazil initiated the National Coastal Management Plan in 1988, just after endorsing Act No 7661. Twenty years later, the Ministry of Environment leads an ambitious management plan for Brazil's 17 coastal States. Its 8,500 km of coastline – along which can be found 300 Municipalities – are administered by the Coastal Quality Manager's Office, under the supervision of the Ministry through the Integrated Management Project for Coastal and Marine Environments, within the sphere of the Territorial Environment Management Programme (PGT, in Portuguese) of the Human Settlement Environmental Quality Secretariat (SQA, in Portuguese). In comparison with Argentina and Uruguay, the Brazilian coastal programme is far more complete and ambitious as it includes, among other objectives, the integrated management of the coastline and the assessment of the potential sustainability of the economic exclusive zone's resources.

#### **IV. Preliminary Conclusions Regarding the Existence of a *Corpus Iuris Aquarum Ambiental* and its Connection with the Protection of the Marine Environment**



The synthesis made over the previous pages about the objectives and most relevant contents of a key selected group of environmental rules –national and international– endorsed by La Plata Basin’s riparians States, allows us to conclude that the analogies greatly surpass the discrepancies. The author has adopted a definition of “discrepancy” or “asymmetry” to mean those principles or objectives that are only established in one or two of the five States, then it can be seen that these are reduced to the following items: (1) the principle of progressivity or graduality (Argentina and Uruguay); (2) the obligation to create environmental heritage accounts with the aim of measuring the variations in the natural national heritage (Bolivia); (3) the continuous monitoring of environmental quality (Bolivia); (4) the protection of the environment against critical environmental and water events –and against the effects of climate change on waters – particularly flooding and salinization (Brazil and Paraguay); (5) the obligation to protect the ecological flows (Paraguay); and (6) the obligation to guarantee the human right of access to drinking water (Paraguay and Uruguay).

On the contrary, such is the legal coherence reached over 75 years of common history that it has of itself acquired the status of a solid *Corpus Iuris Aquarum Ambientalis* exhibiting a customary and binding nature (CAPALDO, 2008). The integral features of this body comprised of the following principles, obligations, rights and objectives: (1) preservation, protection and conservation of water and natural resources; (2) the right to social participation in the environmental management processes; (3) the right to environmental information; (4) the right to environmental education; (5) rational and equitable use of water and natural resources; (6) the right to sustainable development; (7) the principle of intergenerational responsibility; (8) the duty to minimise, control and prevent the pollution of water and the environment; (9) the duty to repair the damages caused to the environment and the water resources; (10) environmental territorial planning; (11) responsibility for the damage caused to the environment; (12) the duty to employ the criterion of unity in the management of water basins; (13) cooperation and neighbourly relationships among the riparian States; (14) exchange of data and information among the riparian States; (15) the duty to notify and undertake consultations prior to any plan, work or action concerning the use of an international watercourse; (16) the duty to maintain the navigability of the rivers; (17) the principle of freedom of navigation along international rivers; (18) responsibility of the States for any damage or threat of damage to the environment through their own activities or through the activities of physical and legal persons living in their lands; (19) the duty to avoid

any significant transboundary damage; (20) an ecosystemic approach; (21) peaceful settlement of disputes; and (22) the duty to observe and strengthen all the environmental treaties in which the riparian States are involved.

This *Corpus* of principles, obligations, rights and objectives applicable to the management of natural resources in general and of water resources in particular is an excellent theoretical and legal framework to develop a common policy among the Member States of La Plata Basin, and *mutatis mutandi* of the MERCOSUR, to facilitate integrated regional action, focused on preventing the pollution of the marine environment from water sources. This action should link the regional level management with the necessary local level interventions, aiming to avoid the degradation of the marine environment from water sources.

There are two questions that we are obliged to consider at this stage in the preliminary conclusions: (1) if the present and near future scenarios have enough environmental indicators to generate a state of alert over the probable pollution of the marine environment from La Plata Basin; and (2) whether the political conditions are favourable to the adoption of a multilateral regional agreement, or, if not, a collection of obligatory resolutions which prevent the pollution of the marine environment from all land-based sources, including those of water.

An affirmative answer to both of these questions prevails for the reasons explained below.

## **1. The Environmental Situation of La Plata River and its Corresponding Maritime Boundary**

In addition to being the broadest waterbody in Latin America (reaching some 230 km where it flows into the sea), La Plata River is an almost unique river-marine system in the world (MÉNDEZ et al, 1997) (see Map 2). Its nature makes it a highly complex aquatic environment, like, for example, the Estuary and Gulf of Saint Lawrence on Canada's Atlantic coast.

There are four river basins that, from the Uruguayan coast, discharge their waters into La Plata River and its Maritime Boundary.<sup>5</sup> One of the main agricultural production areas of the country lies in these basins, characterised by the indiscriminate use of

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<sup>5</sup> These are: Santa Lucía River, Pantanoso Brook, Miguelete Brook, and Carrasco Brook.

fertilisers which are dumped into the Santa Lucía River, as well as agriculture-related industries. Another part of the coast receives effluents from the textile industry and tanneries, and by-products from metal recycling. In the coastal area of Carrasco, the greatest anthropogenic impact comes from tourism, and in Montevideo Bay it comes from the port and the oil refineries (see Maps 3 and 4).

There is an intricate water network that, from the Argentinean coast, drains its waters into La Plata River.<sup>6</sup> In addition, there are two important municipal and industrial sewers in Berazategui and Berisso. The anthropogenic environmental pressure comes from untreated or inadequately treated industrial effluents, sewage, solid waste and oil spills from ships (see Maps 5 and 6).

Due to the considerable quantity of nutrients (carbon, nitrogen and phosphorus) that are discharged into La Plata River, the toxic phytoplankton are expanding (BRAZEIRO et al, 1994,a,b,c). Among the inorganic pollutants, high levels of mercury have been measured, and also base levels of cadmium, lead, chromium, zinc and copper (MOYANO et al, 1992). As regards organic pollutants, traces of chlorinated pesticides associated with water and materials in suspension have been detected in La Plata and Uruguay Rivers (JANIOT and ROSES, 1990, 1992).

According to the results of the workshop held in Colonia Suiza, Uruguay, on 27 May 2004, on “Presentation and Discussion of the Document addressing the Transboundary Diagnostic Analysis (TDA) for La Plata River and its Maritime Boundary” (see Charts 1 and 2), the various environmental impacts to which the River, its coasts and its Maritime Boundary are subjected, will strongly and negatively affect its uses and services in the medium term (+ 25 years) and long term (+ 50 years). The multi-discipline studies “[...] *suggest that the magnitude of the negative impacts on the system could in the long term (+ 50 years) be double the current value. This “vision” of a possible future refers to development without taking any measures to prevent and mitigate these environmental impacts*” (PNUD/GEF-RLA/99/G31 PROJECT, Technical Document, 2005). If they are grouped together in order of importance, these negative impacts will mean: (1) increase in risk of dumping and spills; (2) increase in population pressure on coastal areas; (3) increase in the volume (and changes in the composition) of agro-industrial waste; (4) change in flow of tributary rivers (due to climate change

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<sup>6</sup> These are: Luján River; Medrano, Vega, White, Maldonado, Riachuelo, las Perdices, las Piedras, San Francisco, Giménez, las Conchitas, Pereyra, Martín, Carnaval, Rodríguez, and la Guardia Brooks; the Sarandí, Santo Domingo and Villa Elisa drainage canals; the basin of Santiago River; the East and West canals and the Andaluza gully in the Magdalena district.

effects); (5) increase in volume of waste (in particular in urban effluent); (6) increase in volume of waste (in particular in solid waste); (7) increase in economic pressure on coastal areas; (8) risk of over-exploitation of fishing resources; (9) invasion by exotic species through dumping of ballast waters by boats and “anti-fouling” paints; (10) increase in dredging; and (11) increase in sea level.

It is necessary to conclude that the doubling in size of these impacts produced by water sources between now and 50 years time will not just have a negative impact on the transitional zone between freshwater and seawater ecosystems, but also additionally on the marine environment that is the recipient of the river water (see Map 7). Given this future scenario of adverse environmental impacts, the development of legal frameworks to complement those currently available is a strategy to be taken into account.

## **2. Favourable/Unfavourable Legal Context**

La Plata Basin Treaty empowers the Ministries of Foreign Affairs of the State members to adopt decisions (by a unanimous vote) to devise basic guidelines for a common policy, as well as to adopt the necessary measures to fulfil the Treaty and its objectives (article 2). One of these objectives is the preservation of natural resources in the region (Preamble). It also entrusts the CIC with the task of executing the decisions taken at the Ministers meeting (article 3). Last but not least, nothing prevents the Contracting Parties from adopting specific or partial, bilateral or multilateral agreements, in order to reach the general objectives of the framework agreement (article 6). The HIDROVIA Treaty and the bilateral Treaty of La Plata River and its Maritime Boundary are examples of this.

Consequently, there are no reasons for not adopting another specific treaty aimed at preserving and preventing the pollution of the marine environment from the Basin. This would not alter the spatial scope of the agreement at all, by extending it out of its delimitation since its main objective is to foster the harmonious development and physical integration of the Basin, as well as those areas which directly and considerably affect it (article 1). The sea adjacent to the river is one of these.

The Treaty of La Plata River and its Maritime Boundary plays a key role here since La Plata River is the last segment of La Plata Basin and, therefore, the section through which the whole watershed flows out into the Atlantic. Its agencies are the Administrative Commission (articles 59 to 67), the Secretary (art. 61), and the Joint

Technical Commission (articles 80 to 84). One of the key legislative purposes of the Administrative Commission is to lay down rules for fishing in relation to the conservation and preservation of living resources (article 66.b), while the Joint Technical Commission is entrusted to harmonise the Parties' legislation, on matters within the jurisdiction of the Commission (article 82. f). Among such matter is the prevention and elimination of pollution (article 82.d). In other words, the legislative jurisdictions of both agencies are limited to specific topics. This kind of *capitis diminutio* can be circumvented thanks to articles 66.j and 82.h which grant both Commissions not just the task of fulfilling the other functions that the Parties assign them in their Statutes but also to do so by means of the exchange of instruments constituting a treaty, or other kind of agreements. In these cases, and always in the light of the Treaty's object and purpose, the Commissions can adopt mandatory resolutions, which become binding, for example, by way of the exchange of instruments constituting a treaty. Some of these resolutions could regulate the prevention of marine pollution from La Plata Basin.

## **V. Conclusions and Final Recommendations**

This paper has briefly described the environmental synergy between the freshwater courses and the sea. Multi-disciplinary research demonstrates how significant the pollution of La Plata Basin is, and more specifically the area in which it flows into the Atlantic Ocean through La Plata River. Scientific data affirms that our estuary is a **"fluvial-marine system"** that must be preserved due to its uniqueness in the global environment.

The analysis of the domestic, regional, and international legal context applicable to the riparians reveals that Argentina, Bolivia, Brazil, Paraguay and Uruguay, have a broad spectrum of principles, rights, obligations and objectives in common. Such is the degree of consistency that it upholds the existence of a solid *Corpus Iuris Aquarum Ambientalis* shared by the five riparian States (four of them, are also members of the MERCOSUR). This leads the assertion that such a *Corpus* is not just applicable to La Plata Basin but also to the Amazon, which is the other main river basin in the MERCOSUR.

The decision-making process established by La Plata Basin Treaty and the Treaty of La Plata River and its Maritime Boundary was also examined. Additionally, the South

Atlantic is still not among the regional seas programmes overseen by UNEP covering almost the whole planet.

Due to and based on the previous reasoning, the author believes that the legal regional context is the best possible for endorsing new commitments addressing the protection of marine areas from land-based activities.

To fulfil this objective, the above-mentioned countries have two choices, one which is optimal (maximum) and the second which is imperfect (minimum).

### **1. Optimal or Maximum Strategy**

It would be worthy if the States were to adopt a special treaty for the South Atlantic, relating to the prevention of marine pollution from land-based sources – including, above all, water sources. This treaty should contemplate the principles and actions already present in all the UNEP-Regional Seas Programmes, but additionally –because of its consistency– those that have been adopted and implemented by Argentina, Bolivia, Brazil, Paraguay and Uruguay over the last 75 years. The advantages of such a treaty are: (1) to have a programme to prevent the marine pollution in a region (the South Atlantic) that still has no regional legal policies or frameworks; (2) this programme should include a special chapter devoted to the prevention of marine pollution from water sources; (3) the chapter should also echo the rich mosaic of legal precepts integral to the *Corpus Iuris Aquarum Ambiental* described above. Namely, the programme should welcome those principles and actions sufficiently consolidated by the region not only about water but also concerning the environment; and (4) the programme would not only provide environmental regulation for a geographical area previously lacking such regulation but also unify the regulation of activities affecting the environment along the 16,800 km of coastline of Brazil, Uruguay and Argentina.

### **2. Imperfect or Minimum Strategy**

In case there is no political will to negotiate such a treaty the States have another less ambitious option which consist of adopting a binding resolution for La Plata Basin's riparian States, with the aim to take specific actions to control and prevent the degradation of the marine environment from water sources.

The disadvantage of the adoption of the minimum option is that the resolution could not be extended to other water basins in the riparian States of La Plata Basin which also, to a great extent, flow out into the Atlantic.

To facilitate the adoption of the resolution in the current legal framework governing La Plata Basin, the following prior steps would need to be taken: (1) the power of the CIC under article 3 of La Plata Basin Treaty to execute the decisions adopted at the Meetings of Foreign Ministers would need to be utilised; (2) articles 66.j and 82.h of the Treaty of La Plata River and its Maritime Boundary would need also to be utilised. These articles empower the Administrative Commission and the Joint Technical Commission to adopt compulsory type resolutions regarding matters dealt with by the Treaty, which includes the prevention and elimination of pollution (article 82.d). These powers should be utilised to adopt regulations for the prevention of marine pollution; and (3) coordination of the actions of the two Commissions of La Plata Treaty and its Maritime Boundary with those of the CIC, so that the CIC can execute the decisions adopted at the Meetings of Foreign Ministries and create binding obligations on the Riparian States of La Plata Basin. These decisions must consider that the pollution of La Plata River and its coastline is not just a consequence of the actions of two countries (Argentina and Uruguay), whose coasts are bathed by the River directly before it flows into the Atlantic, but also by the actions of the upstream States (Bolivia, Brazil and Paraguay).

Coordination between the CIC and the other Commissions is indispensable and urgent. It is incomprehensible that this has yet to be achieved – despite almost 40 years having passed since the signing of La Plata Basin Treaty in 1969. The lack of coordination is one of the most serious issues relating to the transboundary governance of La Plata Basin.

In summary, the procedural, operative and spatial limitations described above demonstrate the supremacy of the optimal, or maximum strategy. The legal and political advantages of adopting this initial option are compelling.

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## ABBREVIATIONS/ACRONYMS

AMBA (Área Metropolitana Buenos Aires [Buenos Aires Metropolitan Area])  
CIC (Comité Intergubernamental Coordinador de la Cuenca del Plata [Intergovernmental Coordinating Committee for La Plata Basin])  
GEF (Global Environmental Facility)  
GESAMP (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection)  
GPA (Global Programme of Action)  
ICARM (Integrated Coastal Area and River Basin Management)  
NPA (National Programmes of Action)

PADH (Physical Alteration and Destruction of Habitats)

PNUD (Programa de Naciones Unidas para el Desarrollo [United Nations Programme for Development])

PGT (Programa de Gerenciamento Ambiental Territorial, Brasil [Territorial Environmental Management Programme, Brazil])

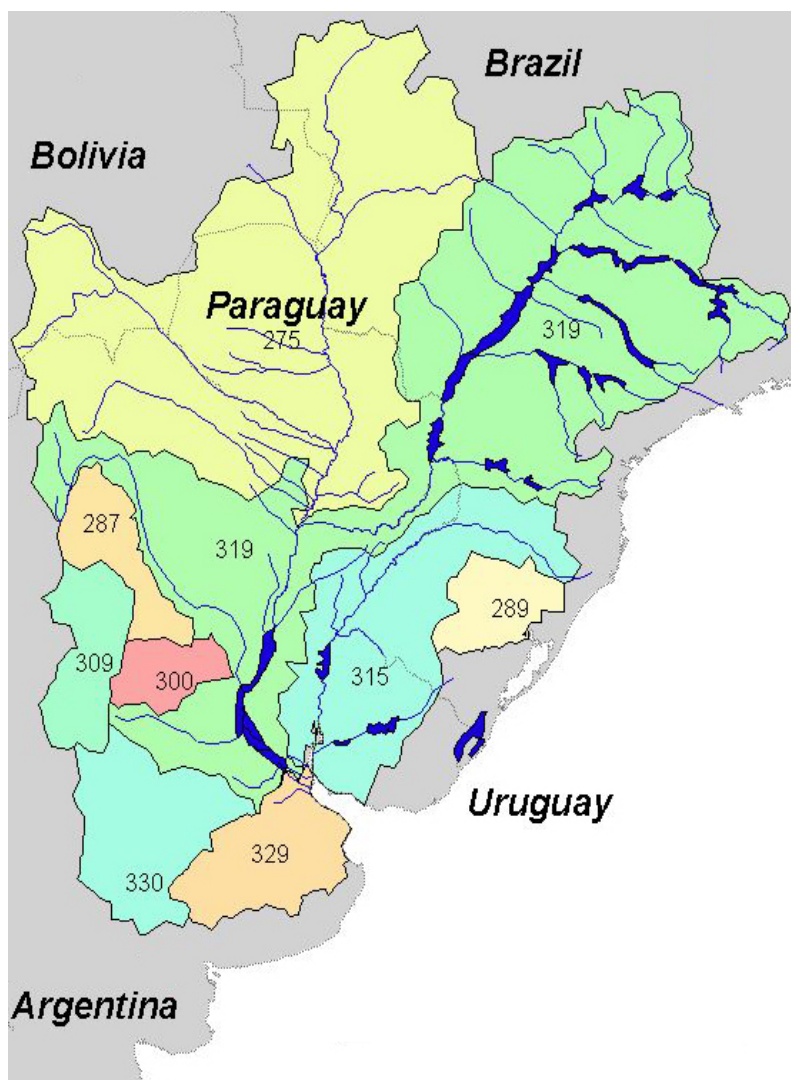
SAP Wastewater (Strategic Action Plan on Municipal Wastewater)

SQA (Secretaría de Calidad Ambiental en los Asentamientos Humanos, Brasil [Human Settlement Environmental Quality Secretariat, Brazil])

UNEP (United Nations Environment Programme)

## ANNEX

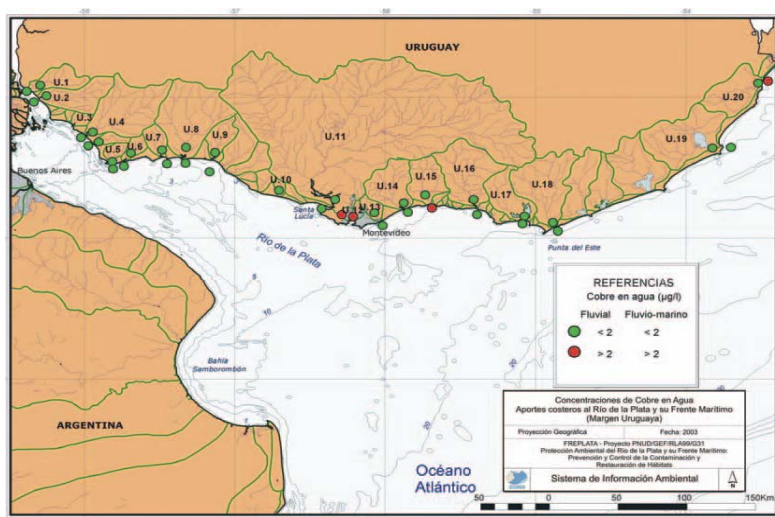
**Map 1**  
**La Plata Basin**



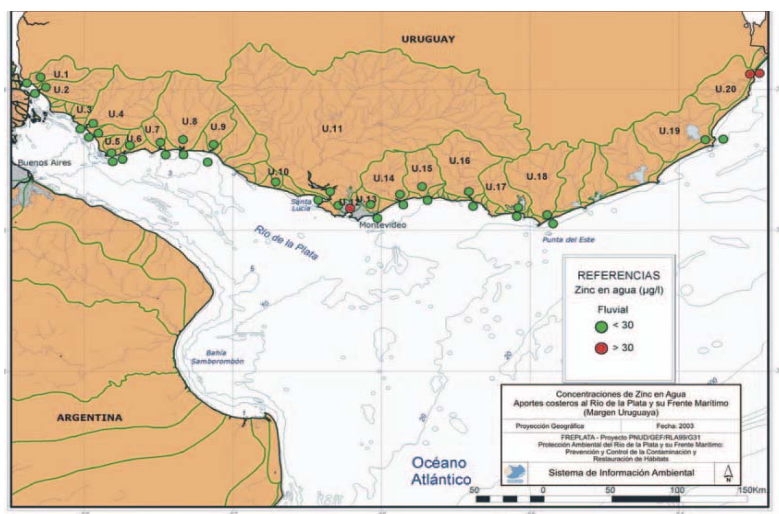
**Map 2**  
**La Plata River and its Maritime Boundary**



**Map 3**  
**Quality of Waters in La Plata River**  
**(land-based sources of pollution from Uruguayan coasts)**



**Map 4**  
**Quality of Waters in La Plata River**  
**(land-based sources of pollution from Uruguayan coasts)**



**Map 5**  
**Quality of Water, Sediments and Biota**  
**in the HIDROVIA Paraná-Paraguay**

