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This report was prepared by the Argentine consulting firm Ambiental S.A., specialized in ecology and the environment, with the cooperation of Plus Consult S.A., a consulting firm specialized in the economy.

**SURVEY OF ENVIRONMENTAL  
BUSINESS OPPORTUNITIES  
IN ARGENTINA**

AMBIENTAL S.A.  
Av. Corrientes 986, piso 6  
1054 Buenos Aires  
Argentina

Tel: (54) (1) 322-2520/5513

Fax: (54) (1) 322-5446

PLUS CONSULT S.A.  
Corrientes 628, piso 7  
1054 Buenos Aires  
Argentina

Dept. of External Affairs  
Min. des Affaires extérieures

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**PREPARED FOR THE DEPARTMENT  
OF FOREIGN AFFAIRS  
AND INTERNATIONAL TRADE**

The following professionals participated in the preparation of this report:

Dr. Carlos Adlerstein, epidemiologist specialized in environmental evaluation and management.

Dr. Norma Cobos, economist specialized in the public sector.

Eng. Pablo Fieder, chemical engineer specialized in environmental regulations and environmental control.

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**AMBIENTAL S.A.**

Av. Córdoba 966, piso 6  
(1054) Buenos Aires  
Argentina

Tel. [54] (1) 322-2520/5513

Fax: [54] (1) 322-5446

**PLUS CONSULT S.A.**

Viamonte 658, piso 2  
(1053) Buenos Aires  
ARGENTINA

The following professionals participated in the elaboration of this report:

Dr. Carlos Adlerstein, epidemiologist specialized in environmental evaluation and management.

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# INDEX

1.	INTRODUCTION .....	Page 1
2.	LOCATION OF POTENTIALLY POLLUTING INDUSTRIAL AREAS .....	Page 2
2.1.	Map of the area .....	Page 3
2.2.	Location of chemical plants and gas plants industrial releases .....	Page 3
2.3.	Location of industrial plants and waste generated by .....	Page 5
2.4.	Hazardous waste .....	Page 10
3.	BASIC SANITATION .....	Page 13
4.	CONTAMINATION OF WATER RESOURCES .....	Page 14
4.1.	Types of contaminating industries in the affected regions .....	Page 14
4.2.	Summary of impact upon surface or ground water .....	Page 15
5.	ECONOMIC PROSPECTS IN THE ARGENTINE ENVIRONMENTAL MARKET .....	Page 15
6.	SOME AREAS DEMANDING SERVICES .....	Page 15
7.	SUMMARY OF BUSINESS OPPORTUNITIES .....	Page 16

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## INDEX

1.	<b>INTRODUCTION</b> .....	Page 1
2.	<b>LOCATION OF POTENTIALLY-POLLUTING INDUSTRIAL AREAS</b> .....	Page 8
2.1.	Miscellaneous .....	Page 8
2.2.	Incidence of climatic factors upon gaseous industrial releases .....	Page 8
2.3.	Features of industrial contaminants and wastes generated by various sources .....	Page 9
2.4.	Hazardous wastes (HW) .....	Page 10
3.	<b>BASIC SANITATION</b> .....	Page 13
4.	<b>CONTAMINATION OF WATER RESOURCES</b> .....	Page 14
4.1.	Types of contaminating industries in the affected regions .....	Page 14
4.2.	Summary of impact upon surface or ground water .....	Page 15
5.	<b>ECONOMIC PROSPECTS IN THE ARGENTINE ENVIRONMENTAL MARKET</b> .....	Page 15
6.	<b>SOME AREAS DEMANDING SERVICES</b> .....	Page 15
7.	<b>SUMMARY OF BUSINESS OPPORTUNITIES</b> .....	Page 16



**APPENDIX 1:** ENVIRONMENTAL PROBLEMS IN THE AGRICULTURAL SECTOR ..... Page 18

**APPENDIX 2:** LIST OF COMPANIES, INSTITUTIONS AND ORGANISATIONS INVOLVED IN THE SUPPLY AND DEMAND OF ENVIRONMENT BUSINESS ..... Page 22

- \* List of Governmental Organizations ..... Page 23
  - Sewage (Companies requiring Services and Technologies) ..... Page 24
  - Ministries ..... Page 25
- \* Effluent Generating Industrial Installations ..... Page 28
  - Metalurgical and Chemicals Industries ..... Page 29
  - Paint Industries ..... Page 32
  - Paper-Mills ..... Page 34
  - Pharmaceutical Industries ..... Page 36
  - Equipments and Materials ..... Page 38
  - Professionals ..... Page 40
  - Private Hospitals and Sanatoria ..... Page 41
  - Tanneries ..... Page 42
  - Slaughterhouses ..... Page 43
- \* Services Suppliers ..... Page 44
  - Consultants ..... Page 45
  - Contractors ..... Page 46

**APPENDIX 3:** LEGAL FRAMEWORK ..... Page 47

1. INSTITUTIONAL AND LEGAL ASPECTS OF ENVIRONMENTAL PROBLEMS ..... Page 48
2. THE CONSTITUTIONAL ISSUE ..... Page 49
3. PROVINCIAL CONSTITUTIONS ..... Page 49
4. DEFINITION OF LEGISLATION AND APPLICATION AUTHORITIES ..... Page 55
5. APPLICABLE LEGAL FRAMEWORK ..... Page 56



# MARKET RESEARCH ON SERVICES, EQUIPMENT AND MATERIALS FOR THE ENVIRONMENTAL SECTOR IN ARGENTINA

## 1. INTRODUCTION

This section refers to the present situation and to the main environmental problems in Argentina.

The aim of this report is to supply information on business opportunities related to ecology and the environment in Argentina, as required by the contract signed by the Department of External Affairs and International Trade of the Government of Canada with the consulting company Ambiental S.A., specialized in managerial and environmental evaluations. It includes a listing of companies and organizations demanding services and equipment, as well as data on a group of companies that are presently offering services and equipment in Argentina.

It is worth pointing out that this report provides a gateway to establish contacts between Argentine and Canadian companies and organizations.

Although smog does not hang over Argentine cities as it does over Mexico City or Santiago de Chile and water is not as polluted as in Europe, there are sectorial reactions against environmental damage when cargoes of imported toxic wastes are discovered by the customs, when millions of birds die in petroleum waste pools in Southern Patagonia and river water is polluted by industrial effluents.

For the first time in this country, the Parliament has just legislated on a matter so elementary as the danger of poisoning. Everybody is familiar with the Riachuelo's black sheen and the pestilent Matanza River. Judges are carrying out proceedings against industries that pollute the environment beyond the authorized levels.

Accidents due to pollution and dangerous waste spills increase daily, as a result of the lack of precautions on the part of industry. Proof of this is in the newspapers of Buenos Aires, in which many articles have recently been published about sulfuric acid and hydrocyanic acid spills that have caused the death of five people. There have also been spills in the La Plata-Rosario industrial areas and petroleum spills in the south of the country, which have polluted the ground water.

Eco '92 in Brazil partially awakened the consciousness in large companies, in Argentina to the need to emulate trends prevailing in Japan, Europe and the United States of America with respect to protecting the environment. To a certain extent, this came from their association with multinationals from those areas. Additionally, companies have been influenced by the environmental conditions imposed by International Financial Institutions, such as the World Bank, as well as credit lines offered to preserve the environment.

¿Where is Argentina in the green revolution?. A poll carried out by Gallup, ordered by CEAMSE (a State-owned corporation taking care of sanitary fills from garbage collection) reflects the poor opinion of the people living in the Capital and in Greater Buenos Aires regarding entrepreneurial concern about the environment.

Almost everybody (96%) believes that industries discharge their wastes into inadequate sites, while most of the people feel powerless to protect the environment, either because they do not



know how to do it or because public authorities do not pay much attention to the environment.

However, a survey carried out by MERCADO Magazine for Telesurvey reveals that, although the environmental protection level in Argentine industries is very low, companies are presently discussing and analyzing the subject. Companies count on freedom from the lack of enforcement of the rules by the authorities and by the absence, until now, of criticism by neighbours.

It has only been during the last two years that concern for the environment has grown, largely as a reaction to the situation in the developed world. The claims by the green parties and by ecological organizations have been reaching the Argentine with some delay,

Awareness of these trends has only influenced a limited number of companies. This view was confirmed by the low response rate to the environmental survey carried out at MERCADO Magazine's request in August 1993: only 62 out of 93 surveyed companies answered, belonging to the following sectors: food (10), textile (14), tanning (3), refrigeration (4), metallurgical-car (17) and chemical/laboratories (14).

The answers to the survey identify foreign and chemical companies as those most interested in the environmental issue. Domestic companies are the ones that, as a general rule, require greater advice, although they are as well acquainted with legal matters as the foreign ones. Nevertheless, in both cases there are few companies with sections fully dedicated to environmental problems and there are even some big companies that share specialists in this field.

The survey also revealed that, generally, environmental issues are not in the hands of decision makers and are almost completely ignored by those to whom they report.

Ecological products are practically absent and, surprisingly, the chemistry sector stands out in their elaboration, even beyond the food sector.

The number of companies that have carried out training courses or seminars hardly amounts to 50% of those surveyed -the chemical and food industries are the most active in this regard.

Generally, training courses are, first, directed to professionals and, then, to managers. Only one third of the surveyed entrepreneurs believes that the sector in which they are involved complies with environmental preservation regulations. Curiously, the level of self criticism is adjusted according to the degree of exposure to specific controls: while metallurgical and food industries are among those asserting that they comply with the regulations and, among these, each one maintains that it is better than its competitors. Chemical and textile industries, conscious of their being targets because of the materials they handle, admit that they have not reached the established parameters.

Since one third of the companies indicated a lack of sewers and running water, future conflict can be foreseen in the outskirts of big cities, once the administrative means to express criticism are within the population's reach.

### **Economic Matters concerning Environmental Pollution**

Argentina is rich in natural resources, covering an area of 2,971,810 km<sup>2</sup>. Although many of these resources are presently being exploited, others are either unexploited or poorly exploited, a



situation that leads directly to poor economic assignments. The limited incorporation of technology that could allow for increasing productivity, as well as the incorporation of inadequate technology, which degrades the environment and deteriorates the quality of life, are the main reasons for an inefficient exploitation of natural resources.

On the other hand, environmental pollution and the deficient use of wealth generate external costs or "diseconomies", as they are known in economics theory. The central idea in this concept is that the costs of inadequate or polluting processes are not incorporated by those responsible of the production processes or by those involved in the consumption of their byproducts, but they fall on the community as a whole.

Thus, the impossibility to accurately assign property rights over the resources used, leads to the appearance of harmful parties and victims, who -in most cases- are not aware of the damage caused or suffered.

Considering the great loss in resources brought about by the aforementioned situation, this problem has been widely studied in the field of economics theory. The conclusions reached tend to indicate that, when it is impossible to fix a price to the damage caused, through direct negotiations between the harmful and injured parties, the State must inevitably intervene. The aim of this intervention is cost internalization by the beneficiary and the correction of resource assignment. For this purpose, Public Authorities may appeal for regulations, taxes or subsidies.

Another matter for consideration is that the increase in production, as well as a steady population growth, especially in urban areas, during the last few years, have brought about an increase in polluting factors.

However, until now, the State's participation in environmental issues has been limited to the elaboration of regulations aimed at closing plants, imposing fines or demanding the incorporation of adequate technology. However, it is impossible to enforce these regulations when consideration is given to the production volume of the industries involved. Should this policy be maintained, the consequence will be the closure of these sources of employment while the impact of sanitation measures and of environmental precautions will be almost inexistent. The only indication of change in this barely effective intervention policy is the requirement for studies on environmental impact by some specific projects.

Undoubtedly, the solution to these problems lies on undertaking other types of action.

**TABLE 1 - Industrial parks**

* Buenos Aires	Pergamino
Azul	Pilar
Bahía Blanca	Ramallo/San Nicolás
Bragado	Tandil
Carlos Casares	Tres Arroyos
Coronel Suárez	
Chivilcoy	* Córdoba
Ensenada	San Francisco
General Pueyrredón	
Lincoln	* Chubut
Olavarría	Comodoro Rivadavia



	Puerto Madryn		
	Trelew	*	Río Negro
	Trevelin		Allen
*	<b>Entre Ríos</b>	*	<b>Salta</b>
	Concordia		Salta
	General Belgrano (Paraná)		
	Guaaleguaychú	*	<b>Santa Fe</b>
			Rafaela
*	<b>Formosa</b>		Reconquista
	Formosa		Sauce Viejo
*	<b>La Pampa</b>		
	Gral. Pico	*	<b>Santiago del Estero</b>
			La Banda
*	<b>Neuquén</b>		
	Neuquén		
*	<b>Mendoza</b>		
	Luján de Cuyo		

Source: Secretary of Industry/Ministry of Production.



TABLE 2 - Urban Centres - Republic of Argentina - 1991

PROVINCE	POPULATION	DWELLINGS
<b>Buenos Aires</b>	<b>12.582.321</b>	<b>4.083.146</b>
Alte. Brown	449.105	122.716
Avellaneda	346.620	109.604
Berazategui	243.690	67.858
E. Echeverría, Florencio Varela	276.017	79.056
Gral. San Martín	253.554	65.304
Gral. Sarmiento	407.506	123.305
La Matanza	646.891	172.292
Lanús	1.121.164	306.865
Lomas de Zamora	466.755	144.732
Merlo	572.769	162.819
Moreno	390.031	105.647
Morón	287.188	83.422
Quilmes	641.541	194.630
San Fernando	509.445	146.667
San Isidro	144.761	42.704
Tigre	299.022	91.521
Tres de Febrero	256.005	75.080
Vicente López	349.221	108.000
Viedma	289.142	101.405
<b>Catamarca</b>	<b>265.571</b>	<b>71.621</b>
Capital	110.489	26.372
Tinogasta	18.768	6.369
Belén	20.926	5.552
<b>Córdoba</b>	<b>2.764.176</b>	<b>871.954</b>
Capital	1.179.067	330.093
Río Cuarto	217.717	72.709
San Justo	176.723	57.559
Punilla	121.173	54.738
<b>Corrientes</b>	<b>795.021</b>	<b>206.039</b>
Capital	267.742	69.695
Goya	78.748	19.268
Santo Tomé	43.329	10.594
<b>Chaco</b>	<b>838.303</b>	<b>211.296</b>
San Fernando	297.646	75.297
Comandante Fernández	77.592	20.844
Lib. Gral. San Martín	48.013	11.524
<b>Chubut</b>	<b>356.587</b>	<b>110.452</b>
Escalante	128.837	37.977
Rawson	100.132	30.839
Viedma	45.583	14.734
<b>Entre Ríos</b>	<b>1.022.865</b>	<b>296.653</b>
Paraná	277.338	78.407
Concordia	138.905	37.279
Gualeguaychú	89.311	27.271



<b>Formosa</b>	<b>404.367</b>	<b>101.710</b>
Formosa	165.700	40.249
Pilcomayo	66.781	15.874
Pirane	57.268	15.479
<b>Jujuy</b>	<b>513.992</b>	<b>126.540</b>
Ledesma	69.215	16.393
San Pedro	66.138	15.994
<b>La Pampa</b>	<b>260.034</b>	<b>90.144</b>
Capital	78.057	24.525
Marasco	44.239	14.486
<b>La Rioja</b>	<b>220.729</b>	<b>56.535</b>
Capital	106.281	25.287
Chilecito	31.268	7.924
<b>Mendoza</b>	<b>1.414.058</b>	<b>381.248</b>
Guaymallén	222.081	56.253
Godoy Cruz	179.502	46.644
Capital	121.696	40.455
<b>Misiones</b>	<b>789.677</b>	<b>204.322</b>
Capital	219.824	59.499
Oberá	83.490	21.696
Eldorado	56.057	14.134
<b>Neuquén</b>	<b>388.934</b>	<b>110.550</b>
Confluencia	265.050	76.493
Zapala	31.303	8.237
Lacar	17.023	5.382
<b>Rio Negro</b>	<b>506.796</b>	<b>156.091</b>
General Roca	264.298	76.705
Bariloche	94.774	29.679
San Antonio	4.297	8.478
<b>Salta</b>	<b>866.771</b>	<b>202.496</b>
Capital	373.857	84.462
Gral. José de San Martín	106.580	25.599
Orán	100.734	22.703
<b>San Juan</b>	<b>529.920</b>	<b>130.289</b>
Capital	119.399	32.643
Rawson	90.492	20.261
Rivadavia	57.273	13.867
<b>San Luis</b>	<b>286.334</b>	<b>82.757</b>
La Capital	121.146	31.575
General Pedernera	90.800	26.106
Ayacucho	15.251	4.901



<b>Santa Cruz</b>	<b>159.964</b>	<b>47.760</b>
Güer Aike	79.033	22.526
Deseado	56.933	16.694
Corpen Aike	7.046	22.052
<b>Santa Fe</b>	<b>2.797.293</b>	<b>892.750</b>
Rosario	1.078.374	349.988
La Capital	442.214	134.345
General López	172.008	60.097
<b>Santiago del Estero</b>	<b>672.301</b>	<b>165.471</b>
Capital	201.709	47.651
Figueroa	106.060	3.526
Banda	104.664	24.798
<b>Tierra del Fuego</b>	<b>69.450</b>	<b>23.753</b>
Río Grande	39.627	13.896
Ushuaia	29.696	9.844
Sector Ant. Argentinas e Islas del Atlántico Sur	127	13
<b>Tucumán</b>	<b>1.142.247</b>	<b>273.235</b>
Capital	473.014	112.390
Cruz Alta	131.943	28.556
Tafi Viejo	79.193	19.062

TABLE 3 - Industrial Production per Sector Base Index 1986 = 100

Period	Total	Foods, Drinks, & Tobacco	Textiles	Paper, Paste, Board and Cardboard	Chemicals	Cement	Basic Metallurgic Industries.	Machinery and equipment
1980	95.2	90.5	69.9	64.1	99.1	128.2	92.9	110.0
1981	78.5	88.5	55.6	59.4	96.9	119.4	85.2	66.8
1982	78.5	85.0	65.5	67.1	100.7	101.6	95.1	60.1
1983	89.4	88.6	81.6	82.9	102.6	101.4	98.5	81.5
1984	96.1	92.0	90.2	90.1	103.8	94.4	96.1	98.8
1985	87.4	94.1	70.3	89.0	98.4	82.5	88.6	84.3
1986		100.0	100.0	100.0	100.0	99.9	99.9	98.7
1987	100.	98.3	95.3	98.2	102.6	113.7	113.6	103.0
1988	0	90.6	93.8	95.2	107.0	108.8	115.8	91.2
1989		90.4	93.6	91.0	102.4	80.3	118.7	60.6
1990	101.	87.1	95.9	86.8	104.3	64.6	106.0	49.6
1991	5	99.0	96.5	97.1	107.1	79.0	96.2	72.7
1992	96.4	101.4	94.0	101.3	116.7	91.4	94.2	112.6
	85.2							
	81.8							
	92.4							
	105.							
	1							

Source: Carteco (Economic Letter / Sept. 1983)



## **2. LOCATION OF POTENTIALLY-POLLUTING INDUSTRIAL AREAS**

### **2.1 Miscellaneous**

The Argentine industrialization process has always been related to economic policies. During the 1950/1970 period, the most dynamic sector was that of basic metallic, machinery and chemical industries. After 1975, these sectors started declining, while enterprises started changing their operations so as to improve efficiency and be able to compete in the market. Among industrial policy trends, a trend to split production processes, using a multi-plant multi-location strategy must be noted. This allowed for the remaining large industries to profit from industrial promotion regimes in some provinces.

In the mid 80s, the following areas in the country had the following regimes:

- a) Areas of net de-industrialization: Buenos Aires metropolitan area, Great Buenos Aires, Santa Fe and Córdoba.
- b) Areas for new industrial undertakings: Provinces of Buenos Aires, Misiones and Chubut.
- c) Areas of recent industrialization on the basis of promotion regimes: Provinces of Tierra del Fuego, La Rioja, Neuquén, Catamarca, San Juan and San Luis, with a great incidence of industries in the fields of electronics, textiles, home appliances and food, most of them installed in industrial complexes.
- d) Areas dedicated to traditional agricultural industries: Provinces of Entre Ríos, Mendoza, Salta, Tucumán, Río Negro, Jujuy, Chaco, Corrientes and San Juan.
- e) Areas without any significant development: Provinces of Santiago del Estero, Formosa, Santa Cruz and La Pampa.

New sectors showing considerable growth and expansion are: paper and paper paste, chemicals, plastics, petrochemicals, aluminum, iron & steel and food preparation, all of them highly polluting.

Most of the industrial plants are located in the neighbourhood of the most important metropolitan areas. In 1984, Buenos Aires, Rosario and Córdoba concentrated 63% of the industrial production. Out of these areas, industrial locations have been ruled by the availability of the required natural resources, mainly water.

In the western provinces of Argentina and especially in the Cuyo area, water is confined to a small number of rivers. This implies that industries have concentrated on their borders and, consequently, their environmental impact upon those rivers is concentrated, since those waterways are generally small streams and, therefore, have a limited capacity for waste assimilation.

### **2.2 Incidence of climatic factors upon gaseous industrial releases**

Temperature changes generating stability in the lower atmospheric layers develop most frequently in the west of the country and less frequently on the Atlantic littoral. This configuration and the resulting winds improve the dispersion of atmospheric contaminants in most Argentine regions, thus reducing the severity of industrial impact upon the atmosphere and make the latter meaningless when compared with effluents released into the water or the soil.



However, some particular cases occurring in large cities are worth being mentioned, as it occurs in Buenos Aires and Córdoba, where the levels of nitrogen, sulfur and lead oxides reach significant levels. Releases from petrochemical industries in Bahía Blanca and from refineries in Ensenada (Province of Buenos Aires) affect the neighbouring human settlements.

The degradation generated by releases from sugar mills and alcohol industries in the province of Tucumán (NW Argentina) is significant. An estimation indicates that 26,000 tons of particles, 400 tons of carbon monoxide, 230 tons of hydrocarbons and 300 tons of nitrogen oxides are released into the atmosphere. The primary source of these releases is the burning of bagasse (milled cane). Quality regulations establish a limit of 5 tons of particles per square kilometer, while presently up to 60 tons per square kilometer are being released in some areas.

### **2.3 Features of industrial contaminants and wastes generated by various sources**

Information on this subject is scarce due to several factors. On one hand, there has not been a firm environmental policy by the government, a fact that is fortunately being changed during the last few years.

The lack of application of the few specific regulations for the control of contaminating wastes by the national and local agencies during the last 20 years has promoted a delay in entrepreneurial undertakings aimed at complying with them. Economical stagnation was another factor limiting the available capital for financing equipment and waste processing plants, which were only installed willingly by a few multinational companies.

Recently, considering the critical situation in several areas of the country, studies were performed for evaluating the contamination of liquid effluents upon surface waterways, by which biochemical oxygen demand (BOD) and other basic parameters were assessed under initiatives by provincial governments and, later on, by the Federal Government.

These tasks have encouraged the compliance with the regulations in force in this field and the creation of guidelines for several parameters, so as to protect first-priority resources (i.e., potable water - Sanitary Works Agency - Province of Santa Fe - Regulations and limits for the release of hydrocarbons into the Paraná River).

The incidence of discharges into water bodies (rivers, lakes) will depend on their capacity for self purification that, in turn, derives from their hydrological situation (flow rates), aeration and own load.

#### **Environmental impact generated by some typical industrial effluents (1980-1990)**

1. Production of alcohol - Market demand
  - volume: 390,000 m<sup>3</sup>/yr
  - volume of waste 4,680,000 m<sup>3</sup>/yr (15 m<sup>3</sup> of this fermented molasses waste per liter of alcohol produced is discharged).
  - organic load: 117,000 ton BOD/yr (biochemical oxygen demand).



2. Slaughter houses, production and liquid effluents

- number of cattle head slaughtered: 15,616,602/yr
- waste discharge rate  $10^3 \times 41,540 \text{ m}^3 \text{ year}$
- Biochemical oxygen demanding load: 44,039 ton/year

3. Sugar industry - Production/liquid discharge

- sugar produced:  $10^3 \times 1,038 \text{ ton/yr}$
- milled cane  $10^3 \times 9,601 \text{ m}^3 \text{ /yr}$
- water consumption  $10^3 \times 8,060 \text{ m}^3 \text{ /yr}$
- contaminating loads: froth 28,803 ton/yr - liquid effluent 46,085 ton BOD/yr (Biochemical oxygen demanding).

4. Wine industry - Production/liquid discharge

- production: 26,189,926 HI/yr
- water consumption  $10^3 \times 8,060 \text{ m}^3 \text{ /yr}$
- contaminating load 6,245 ton BOD/yr

5. Paper cellulose industry - Production/liquid discharge

- sulfated pulp (Kraft) manufactured  $10^3 \times 362,788 \text{ ton/yr}$
- waste discharge rate  $10^3 \times 22,239 \text{ m}^3 \text{ /yr}$

Contaminating loads:

- BOD 11,246 ton/yr (biochemical oxygen demanding)
- suspended solids 6,530 ton/yr
- total solids 60,223 ton/yr

6. Paper manufacture:  $10^3 \times 925,945 \text{ ton/yr}$

- waste discharge rate  $10^3 \times 50,001 \text{ ton/yr}$
- BOD 7,408 ton/yr (Biochemical oxygen demanding)
- suspended solids 21,297 ton/yr
- total solids 34,260 tn/yr

## 2.4 Hazardous wastes (HW)

Scarce information is available on HW generators, distribution and profile. HWs are generally dumped into sewage or rain water systems and into neighbouring creeks in the areas where the industrial plants are located. They are also disposed in open-air garbage sites (approximately 200 sites have been identified in the Buenos Aires metropolitan area).

A study performed by CEAMSE (a State-owned corporation taking care of sanitary fillings from garbage collection) in 1981 was aimed at identifying the garbage sites within its jurisdiction in order to design a waste processing plant and the final disposal of HWs, although this project has not been executed as yet.



A legal framework was established in the national sphere concerning this issue, although local authorities are still concerned and fearing that their territories may be selected as the geographical location where a plant for HW processing could be sited.

The official reaction of the authorities in Misiones and in Patagonia, as well as that of their populations, toward attempts aimed at importing HWs, has been strong in preventing these activities that are presently forbidden (Law 24,051, Decree 831/93).

By means of several agreements, the Secretary of Transportation has regulated the transport of HWs and a specific committee dealing with this subject has been appointed.

In 1991, Argentina adhered to the Basel Agreement related to trans-boundary transport of hazardous wastes and their disposal.

However, control of HW in this country has been transferred from the provincial governments to the various Municipal Authorities, while the latter lack the adequate material or human resources needed for such function.

Hazardous wastes configure a relevant problem because no deposits or processing plants are available for the present or future needs. The minimal demand has been estimated to include three processing plants for Greater Buenos Aires and the La Plata-Rosario stretch.

On the other hand, cities such as Córdoba, Bahía Blanca and Mendoza are already justifying the installation of their respective plants within a short term. The present legislation in the country is sufficient for the siting of these plants.

Problems related with pathological wastes is another problem still unsolved in Argentina. These wastes are only being processed in some services and/or plants. Demand is important in all the cities of the country because, in addition to public and private hospitals, odontological, pathological and veterinarian clinics must also be taken care of. The legislation in force is sufficient for demanding the delivery of pathological wastes to processing plants.

An example of the dimension acquired by this problem is that of service stations, which sell fuels, do car washing, produce mud containing polluting materials and have no facilities for its storage or processing. As it may be seen in Table 4, the number of these stations has reached 5,726.



**TABLE 4 - Service Stations per Province**

<b>Provinces</b>	<b>Number of Service Stations</b>
<b>Capital</b>	<b>422</b>
<b>Buenos Aires</b>	<b>2309</b>
<b>Catamarca</b>	<b>23</b>
<b>Cordoba</b>	<b>697</b>
<b>Corrientes</b>	<b>99</b>
<b>Chaco</b>	<b>94</b>
<b>Chubut</b>	<b>77</b>
<b>Entre Ríos</b>	<b>240</b>
<b>Formosa</b>	<b>33</b>
<b>Jujuy</b>	<b>32</b>
<b>La Pampa</b>	<b>129</b>
<b>La Rioja</b>	<b>29</b>
<b>Mendoza</b>	<b>180</b>
<b>Misiones</b>	<b>115</b>
<b>Neuquén</b>	<b>57</b>
<b>Río Negro</b>	<b>105</b>
<b>Salta</b>	<b>78</b>
<b>Santa Cruz</b>	<b>32</b>
<b>Santa Fe</b>	<b>683</b>
<b>San Juan</b>	<b>63</b>
<b>Santiago del Estero</b>	<b>67</b>
<b>Tierra del Fuego</b>	<b>7</b>
<b>Tucumán</b>	<b>94</b>
<b>Total</b>	<b>5726</b>

**Source:** Dirección Nacional de Combustibles. Secretaría de Energía de la Nación



### 3. BASIC SANITATION

The population growth during the last 20 years in Argentina and the lack of new supplies of potable water and sewage systems are the reasons for the present deficit in basic sanitation.

The country's population in 1970 was 23,364,431. It reached 27,568,813 in 1980 and 32,370,298 in 1991. Besides, the process of concentration in urban areas, especially in those with 10,000 to 60,000 inhabitants, continued during this period.

Data from 1976 shows that the demand for potable water (2,481 Hm<sup>3</sup>) was 9% of the total amount of water used (18% was used by industry and 73% for irrigation).

The data available indicates that 66% of the urban population of Argentina relied on a centralized water supply. The urban population without centralized water supply involved 9.44 million inhabitants, of which 5.54 million were settled in the Province of Buenos Aires.

The sources of potable water are the following: 45.6% surface extraction, 30% mixed, 22.2% underground, 1.6% rain water or sub-surface.

According to a report by AIDIS (Argentine Association of Sanitary Engineering Environmental Science) dated in 1982, many of the potable water supply facilities needed repair work or replacement (for 7.5 million inhabitants).

Concerning the sewage systems: the coverage involves 37% of the urban population. Non-serviced population involves 17.39 million inhabitants (92% in the urban areas and 8% in the rural zones).

The province of Buenos Aires accounts for 75.3% of such deficit, followed by Santa Fe and Córdoba (the three of them add up to 65% of the total or 11.39 million inhabitants).

It must be noted that sewage wastes from 75.3% of the serviced population were discharged without any previous treatment, with consequent effects upon the receiving water bodies. The most outstanding example is the River Plate coastal area, receiving the discharge of raw domestic effluents from Buenos Aires city and Greater Buenos Aires, as well as contaminating wastes from industries and other sources (this was previously serviced by a State agency, OSN, and has now been transferred to a private enterprise, Aguas Argentinas S.A.).

As far as non-serviced residents, they must dispose of their wastes individually within the sites neighbouring their dwellings.

The deficient basic sanitation system, including the postponement of investment in the supply of potable water, sewage systems and processing of liquid wastes, has had its influence upon the growth of certain diseases caused by contaminated water, such as gastroenteritis, hepatitis, typhoid fever, cholera and environmental parasitism, as has happened in other Latin American countries. Consequently, there is an urgent demand for the corresponding investments that, in view of the deficient situation of the State, must be performed through the privatization of public services. There is a growing market for



this type of investments, both through service privatization and through the supply of equipment for water treatment and waste processing, public works projects and institutional development.

Argentina has several problems related to water for consumption; some with a high salinization level and/or high fluoride contents and others with a high degree of contamination or eutrophication. Therefore, there are possibilities for the placement of equipment aimed at solving such problems. To start with, the authorities, cooperatives and private companies are demanding global solutions, including infrastructure works and, in some cases, also service operation. These opportunities are referred to suppliers of equipment for the provision of potable water, for water fluoridation and desalination and for the treatment of sewage and industrial effluents in small, medium-sized and large-sized population settlements and in industrial complexes.

#### **4. CONTAMINATION OF WATER RESOURCES**

The quality of the Argentine water resources for diverse applications (potable water supply, agriculture, recreation, fishing) has been affected in several basins of the country. The reasons for such deterioration include, among others, the discharge of sewage and rain wastes and of scarcely-processed or un-processed industrial effluents, the recycling of drainage water with high salinity for irrigation, the leaching of pesticides from the soil, fuel spills and other sources.

As far as underground water is concerned, contamination is due to percolation of liquids originating in cesspools or in garbage sites, to the use of fertilizers and pesticides in agriculture, to the runoff of water used in petroleum exploitation, to the discharge of toxic wastes resulting from industrial processes, etc.

On the basis of information dated 1976, the greatest requirements of water for industrial usage will be concentrated in the following hydric regions: Lower Paraná River and River Plate, Northwest, Cuyo, Córdoba and Buenos Aires Atlantic Coastal Area.

##### **4.1. Types of contaminating industries in the affected regions**

- Northwest: Sugar mills and refineries, paper manufacturing, beer and basic metal. Basins affected: San Francisco River, Salí River (fresh) and Río Hondo Reservoir.
- Cuyo: Wine industry, fruit and vegetable packing and conservation, oil refineries and metallurgical industries. Basins affected: Pescara Channel and irrigation channels in Mendoza.
- Córdoba: Food and metallurgical industries, automobile industries, fabrication of chemical products. Basins affected: Primero River, Tercero River and Río Tercero Reservoir.
- Buenos Aires Coastal Area: Oil refineries and petrochemical industries, production of cement, chemical products and food industries. Area affected: Buenos Aires, Mar del Plata and Bahía Blanca.



- Relevant special cases: aluminum fabrication and petroleum extraction in Patagonia, pulp and paper fabrication up the Paraná River and fruit conservation at the Comahue region.

#### **4.2. Summary of impact upon surface or ground water**

There is a growing deterioration in the quality of potable water sources in several areas of the country, such as: contamination by petrochemical products at the Rosario water intake (Paraná River); contamination with nitrates of ground water sources (Greater Buenos Aires); and eutrophication in several reservoirs: San Roque in Córdoba, Salto Grande in Entre Ríos, Cabra Corral in Salta, Itiyuro in Salta and Cruz de Piedra in San Luis.

The wastes discharged into the Sali River damage, among other things, the oxygen content of that water course. The organic load (164,000 ton/yr) comes from industrial effluents (mostly from the alcohol industry, 68%).

The lack of domestic and industrial waste processing along the Paraná River, as well as abuse in the use of agrochemical products and the hydrocarbon spills, are producing bacterial and chemical contamination on stretches neighbouring both urban and industrial settlements.

### **5. ECONOMIC PROSPECTS IN THE ARGENTINE ENVIRONMENTAL MARKET**

A report by the OPIC (US Overseas Private Investment Corp.) dated August 26, 1993 stated that the best commercial market in the environmental field is presently in the Southern Cone of the Americas and, particularly, in Argentina, Brazil and Chile.

The investments being made in those countries in environmental technologies represent an excellent opportunity for international companies, since the market potential until the end of the present century amounts to 17 billion US dollars, while the present world market would double from 300 to 600 billions.

OPIC is an agency of the US government dedicated to the evaluation of commercial opportunities for US firms willing to invest in environmental issues, promoting joint projects with South American enterprises for the export of technology and equipment apt for ecological treatment. It also supports private companies with loans and insurance when they make investments in the environmental field of developing countries.

### **6. SOME AREAS DEMANDING SERVICES**

Water fluoridation and local medical applications for children under 12 are practices promoted by odontological health programs of the federal and provincial governments. There is a growing demand for water fluoridation programs and equipment. There are possibilities for Aguas Argentinas, the company supplying potable water in Buenos Aires city and its outskirts, to incorporate water fluoridation, since legislation has been issued favouring this procedure. Presently, the local market is supplied by one local firm and through imports. The fluorine to be purchased in 1994 would amount to about 4 million US dollars.



The local demand for mineral water has been growing geometrically during the last five years. The local supply has also been growing but it cannot approach the market needs. The future is posing a significant growth based on the fact that the population is conscious of the risks involved in the use of potable water in certain cities. This is not only due to its being subject to treatments involving high chlorine levels, but also because the water distribution network has deteriorated. There are many unexploited sources of mineral water in diverse areas of the country.

Investments within the framework of contamination control, effluent and hazardous wastes treatment is a recent market in Argentina. Additionally, account must be made of the demand for sanitation services and for the supply of potable water.

Another especially important field is the agricultural one, since it is being submitted to a transformation process and is facing problems in overcoming the use of new technologies, agrochemical products and herbicides, the control of erosion or floods or the irrigation programs. These matters are discussed in detail in Annex 1, considering the leading role of agriculture in the country's economy and the opportunities for business arising in that sector.

On the other hand, the potential involved in starting business or investments in Argentina must be analyzed as a way into the Mercosur and into other South American countries, a territory with over 200 million consumers demanding, as first priority, sanitation services and the supply of potable water.

The environmental problem caused by hydrocarbon exploration, exploitation and industrialization in Argentina is significantly important: more than 10,000 pools filled with hydrocarbons are abandoned, involving serious risk for the penguin and sea lion populations; salinized water is produced and disposed of anywhere; service stations produce mud from car washing and there are no processing plants to receive it; refineries show great deficiencies in the treatment of both liquid and gaseous wastes. All of this shows an outstanding deficit in this sector as far as environmental consideration is concerned. The solution is being based on a proposal for specific environmental regulations that, aided with a loan from the World Bank to Argentina, are being formulated by Ambiental S.A. from Argentina and Ecoconsult Ingeniería del Medio Ambiente from Spain. Within this regulatory framework, after the creation of control units in the public sector and with a mandatory demand and requirements for environmental control and preservation, significant changes are to be expected. This opens up a market for modifying technologies and plants for processing liquid and gaseous effluents in hydrocarbon and petrochemical plants, along with pool repair work, soil restoration and salinized water treatment.

## **7. SUMMARY OF BUSINESS OPPORTUNITIES**

As it was stated in the introduction, there are many issues in Argentina that may be considered as potential business opportunities for Canadian enterprises. Among them, let us mention the supply and expansion of water processing plants, the treatment of sewage and industrial effluents, the management of pathological and hazardous wastes, the prevention and control of oil spills, the control of gaseous releases and environmental monitoring and surveillance.



In connection with such demand for technology, goods and equipment, listings are being enclosed under Annex 2, including institutions and enterprises rendering potable water services and performing sewage and industrial waste treatment, polluting enterprises requiring better effluent treatment processes, such as slaughter houses, petrochemical industries and public and private hospitals. Consideration must also be given to consulting enterprises for the supply of equipment and services.

Thus, a guide is made available, including the main entrepreneurial groups and the agencies in the public sector that are presently involved both in the supply and in the demand.

It must be noted that a relevant transformation is taking place in Argentina, including the public sector's privatization and deregulation process, the creation of an environmental legal framework and a growing demand for environmental protection by the community that is comparable with that in the northern countries. All of these constitute a fertile scenario for good business. This is the challenge posed to Canadian entrepreneurs.

Year	...	...	...	...	...	...	...	...	...
1987	...	...	...	...	...	...	...	...	...
1988	...	...	...	...	...	...	...	...	...
1989	...	...	...	...	...	...	...	...	...
1990	...	...	...	...	...	...	...	...	...
1991	...	...	...	...	...	...	...	...	...
1992	...	...	...	...	...	...	...	...	...
1993	...	...	...	...	...	...	...	...	...
1994	...	...	...	...	...	...	...	...	...
1995	...	...	...	...	...	...	...	...	...
1996	...	...	...	...	...	...	...	...	...
1997	...	...	...	...	...	...	...	...	...
1998	...	...	...	...	...	...	...	...	...
1999	...	...	...	...	...	...	...	...	...
2000	...	...	...	...	...	...	...	...	...
2001	...	...	...	...	...	...	...	...	...
2002	...	...	...	...	...	...	...	...	...
2003	...	...	...	...	...	...	...	...	...
2004	...	...	...	...	...	...	...	...	...
2005	...	...	...	...	...	...	...	...	...
2006	...	...	...	...	...	...	...	...	...
2007	...	...	...	...	...	...	...	...	...
2008	...	...	...	...	...	...	...	...	...
2009	...	...	...	...	...	...	...	...	...
2010	...	...	...	...	...	...	...	...	...
2011	...	...	...	...	...	...	...	...	...
2012	...	...	...	...	...	...	...	...	...
2013	...	...	...	...	...	...	...	...	...
2014	...	...	...	...	...	...	...	...	...
2015	...	...	...	...	...	...	...	...	...
2016	...	...	...	...	...	...	...	...	...
2017	...	...	...	...	...	...	...	...	...
2018	...	...	...	...	...	...	...	...	...
2019	...	...	...	...	...	...	...	...	...
2020	...	...	...	...	...	...	...	...	...



## APPENDIX 1

### Environmental problems in the agricultural sector

#### INTRODUCTION

#### Current erosion in Argentina

The information available allowed for consulting general numerical data from 18 provinces. Towards facilitating the corresponding synthetic analysis, a summarized table, with rounded figures, is inserted herewith.

**Table 1.- Current erosion in Argentina (data valid for 1986, in hectares)**

Province	Surface	WATER EROSION				WIND EROSION			
		Moderate	Severe Critical	Total ha.	%	Moderate	Severe Critical	Total Ha. / %	Grand Total Ha. / %
Ba. Aires	30.757.000	4.700.000	100.000	4.800.000	16,0	3.000.000	750.000	3.750.000 12,0	8.550.000 28,0
Córdoba	16.877.000	740.000	360.000	1.100.000	7,0	1.560.000	980.000	2.540.000 15,0	3.640.000 22,0
Corrientes	8.820.000	585.000	80.000	665.000	8,0	160.000	--	160.000 2,0	825.000 10,0
Chaco	9.963.000	1.385.000	745.000	2.130.000	21,0	--	--	--	2.130.000 21,0
Chubut	22.469.000	--	1.330.000	1.330.000	6,0	--	2.960.000	2.960.000 13,0	4.290.000 19,0
E. Ríos	7.878.000	650.000	550.000	1.200.000	15,0	--	--	--	1.200.000 15,0
Formosa	7.207.000	2.400.000	450.000	2.850.000	40,0	150.000	200.000	350.000 5,0	3.200.000 44,0
Jujuy	5.322.000	600.000	--	600.000	11,0	300.000	--	300.000 6,0	900.000 17,0
La Pampa	14.344.000	--	20.000	20.000	0,2	160.000	185.000	345.000 3,0	365.000 3,0
La Rioja	9.233.000	1.000.000	2.400.000	3.400.000	37,0	400.000	400.000	800.000 8,0	4.200.000 45,0
Misiones	2.980.000	200.000	60.000	260.000	9,0	--	--	--	260.000 9,0
Río Negro	20.301.000	540.000	--	540.000	3,0	520.000	420.000	940.000 4,0	1.480.000 7,0
Salta	15.477.000	115.000	65.000	180.000	1,0	--	--	--	180.000 1,0
San Juan	8.614.000	800.000	1.750.000	2.550.000	30,0	550.000	900.000	1.450.000 17,0	400.000 47,0
San Luis	7.675.000	600.000	530.000	1.130.000	15,0	150.000	1.840.000	1.990.000 26,0	3.120.000 41,0
Santa Cruz	24.394.000	--	940.000	940.000	4,0	--	5.740.000	5.740.000 24,0	6.680.000 28,0
Santa Fe	13.300.000	1.000.000	210.000	1.210.000	9,0	70.000	--	70.000 1,0	1.280.000 10,0
Tucumán	2.252.000	67.000	36.000	103.000	4,5	--	15.000	15.000 1,0	118.000 5,0
TOTALS	228.179.000	15.382.000	99.626.000	25.008.000	11,0	7.020.000	14.390.000	221.410.000 9,0	46.418.000 20,0

Source: INTA, El deterioro del medio ambiente en la República Argentina, 1988.



Table 2.- Synthesis of current erosion in 18 provinces

Type of Erosion	Moderate ha.	%	Severe-Critical ha.	%	Total ha.	%
Water erosion	15.400.000	62	9.600.000	38	25.000.000	100
Wind erosion	7.000.000	33	14.400.000	67	21.400.000	100
<b>TOTAL</b>	<b>22.400.000</b>	<b>48</b>	<b>24.000.000</b>	<b>52</b>	<b>24.000.000</b>	<b>100</b>

Source: Environmental damage in Argentina, 1988.

From the analysis and evaluation of the above figures, the following considerations can be made:

1. In order to simplify the study of the numerical values obtained from the survey and to facilitate the perception of their importance, a decision was made to evaluate water and wind erosion principally in their "moderate" and "severe/critical" degrees of intensity: The comments below refer to soil damage in the intensity involved in such degrees.
2. When comparing the values in the different provinces, it was found that some of the figures were considerably higher (for instance, Mendoza, San Juan and La Rioja) and others considerably lower (such as Salta and La Pampa). This indicates the need to unify criteria and evaluation methods for degrees of erosion and environmental degradation.
3. In the case of the Patagonia, due to its special very typical features, in addition to the information collected for each one of the provinces, some of the data is shown and some comments are made as viewed from a regional viewpoint.
4. The figures for Rio Negro refer only to the erosion measured in the southern third of the province's territory.
5. Available data of the controls carried out in Mendoza show that more than half of the provincial surface is affected by the moderate, severe and critical degrees.
6. The extension of the national territory affected by erosion caused by water is 17% larger than that caused by wind. However, when comparing the damage intensity of the corresponding processes, it must be pointed out that the severe and critical degrees are registered in two thirds of the area affected by wind erosion (14,390,000 ha) and only in one third of the area affected by water erosion (9,626,000 ha).
7. The 46,400,000 intensively eroded hectares (in a total surface of 228 million hectares, corresponding to 80% of the country covered by the 18 provinces included in Table 2), must be added to the areas eroded in the remaining 20% of the national territory. It is well worth mentioning that the magnitude and the criticality of erosion in that remaining 20% are proportionate to those shown in Table 2. Therefore, it may be inferred that the surface affected by the three degrees of erosion under analysis must be approximately 58 million hectares.



8. If the global data available for Mendoza are added to the total figures, the total intensively eroded surface reaches 22% of the 19 provinces with complete data. The affected area is over 19% in ten of them, while it reaches 50% in Mendoza. These ten provinces, covering more than a half of the country's territory, and their percentages of deteriorated surface are: Mendoza (50%), San Juan (47%), La Rioja (45%), Formosa (44%), San Luis (41%), Buenos Aires (18%), Santa Cruz (28%), Córdoba (22%), Chaco (21%) and Chubut (19%). The average percentage of intensively eroded areas in these 10 provinces amounts to 31%, this meaning that one third of their territory has suffered intensive damage.

### **Flooding and drowning**

Water is a fundamental element for the existence and normal development of life. Due to its nature, lack or excess water gives rise to serious restrictions in the life of man, animals and plants.

Argentina has a rainfall system and hydric balance showing that, generally speaking, only approximately 25% of its continental territory (70,000,000 hectares) can be regarded as humid. The remaining 75% (more than 200,000,000 hectares) suffers, in one way or another, the lack of water, as far as agricultural production is concerned. According to its rainfall distribution, the Argentine territory can be divided into three big natural agricultural regions, developed in a north-south direction. As from the Littoral to the west, the most oriental one is the humid region. A large central strip extending from the Pilcomayo river to the Colorado river is the sub-humid and semi-arid region. The west of the country, from La Quiaca to the Strait of Magallanes, is the arid and semi-desert region, with the exception of the environments dominated by the Tucumano-oranense in the NW and the Andino-patagónico in the SW. As far as the availability of rainfall water for agricultural purposes is concerned, the humid region is that area with adequate soil humidity required for crops. In sub-humid and semi-arid environments, satisfactory outputs can only be achieved if advanced technology is applied.

In the lowest arid regions, agriculture cannot be practiced without an irrigation system. Due to the irregularity of the meteorological seasons, this territorial distribution based on rainfall averages is frequently affected by either lack or excess of water resulting in droughts or floods and drowning.

Any study of the environmental damage must consider the above mentioned rainfall distribution and features in the country as a natural aggravating factor. Moreover, mans induced action on the environment intensifies the negative incidence of such meteorological behavior and makes it more critical.

Arid conditions, droughts, drowning and floods are constantly interfering with the country's vital social and economic processes, acting either directly upon animals and plants or by exerting their important negative effects upon the soil and the natural and human structures: settlements, railroads, roads, dikes, irrigated land, river waterways, ports, lakes and so on. The drowning as well as the floods occur as a consequence of the presence of an excessive quantity of water on the land. The excess can take place in two situations of increasing gravity: a) by the drowning of the soil with the consequent dislodgment of air from the soil pore spaces and the exposure of phreatic water in the land surface, b) by flooding, as a result of a temporary presence in the land of a layer of water directly contributed by the rain or water courses and overflowing resulting from the frontal advance of the liquid mass (surface drainage), especially in very flat lands. The



flooding and drowning phenomena have always occurred in the country. However, since 1970, floods have become more common with the start of a humid cycle that has been affecting many areas of the country in the form of intense rainfall concentrated in short periods of time. Moreover, this phenomenon occurs in a country with large surfaces susceptible to floods. This is due to both natural conditions, such as a flat relief and favorable soil features, and to man-induced ones, imposed through inadequate use and management, which hinders infiltration and creates extremely slow drainage.

### **Potential customers**

1. All the Argentine provinces, through their ministries of Agriculture, or Production or of Ecology and the Environment (or their corresponding Secretariats), etc. have responsibility for various concerns e.g: the western Argentine provinces (Catamarca, La Rioja, San Juan, Mendoza, etc.) and the Patagonia wind erosion; the provinces of Buenos Aires and in the Littoral, water erosion, floods and drowning.
2. Agricultural producers in the aforementioned provinces, who may have access to tools or techniques allowing them to apply erosion control or who could apply alternative working methodologies when natural conditions do not allow them to work with their conventional tools and techniques (for instance, harvesting under water).
3. Agricultural producers, in some cases, may need to diversify their farming, cattle-raising, dairy-farming and other techniques through the application of intensive technologies including irrigation systems and the application of agrochemical products and nutrients. All this must be supplemented by industrial processes allowing them to sell quality products, with added value, in the international markets.







## APPENDIX 2

List of companies, institutions and organisations involved in the supply and demand of environmental business.

LIST OF GOVERNMENTAL ORGANIZATIONS







SEWAGE (COMPANIES REQUIRING SERVICES AND TECHNOLOGIES)

OBRAS SANITARIAS  
BUENOS AIRES  
Calle 8 N° 366  
(1900) La Plata, Pcia. de  
Buenos Aires  
Tel: (021) 21-8157/21-  
1921/24-4355/21-7258  
Fax: (021) 91841  
Administrador General:  
Contador Luis Sanguinetti

ESTE TRIPARTITO  
OBRAS Y SERVICIOS  
SANITARIOS METROS  
Av. Calles 8 y 9  
(1023) Capital Federal  
Tel: (01) 504-3506/804-  
0960  
Interventor: Ing. Eduardo  
Cenello

OBRAS SANITARIAS  
CATAMARCA  
Bv. de la 3er  
(4700) S.F. de V. de  
Catamarca, Pcia. de  
Catamarca  
Tel: (0833) 31212  
Fax: (0833) 518548  
Administrador: Ing. Jorge  
Marcolli

DIRECCION PROVINCIAL  
DE AGUA Y  
SANEAMIENTO (DIPAS)  
Humbaro Pardo 804  
(5000) Córdoba  
Tel: (051) 220603 /  
222000 / 223158  
Fax: (051) 226119  
Presidente: Ing. José  
Sella

DIRECCION PROVINCIAL  
DE OBRAS SANITARIAS  
DE SANTA FE  
Patricio Cullen 6161,  
Piso 1°  
(3000) Santa Fe  
Tel: (042) 60000  
Fax: (042) 60066  
Administrador: Dr.  
Roberto Gaya

FEDERACION DE  
COOPERATIVAS DE  
AGUA POTABLE DE  
RIO DE LA PLATA  
(3534) Puerto Rico, Pcia.  
de Misiones  
Tel: (0743) 20128  
Fax: (0743) 20330  
Presidente: Sr. Carlos  
Gustavo Trovato

EMPRESA PROVINCIAL  
DE AGUA Y  
SANEAMIENTO (EPAS)  
Santiago del Estero 426  
(8200) Pehuajó  
Tel: (089) 41402 Int. 21  
/ 5955/7  
Fax: (089) 30413  
Director: Ing. Enrique  
Estevez

DIRECCION PROVINCIAL  
DE AGUA DE RIO NEGRO  
San Martín 248  
(8500) Viedma, Pcia. de  
Río Negro  
Tel: (0920) 25411 /  
23456 / 217887  
Fax: (0920) 25035  
Subintendente: Fernando  
Elio

DIRECCION PROVINCIAL  
DE OBRAS SANITARIAS  
DE SALTA  
España 877  
(4400) Salta  
Tel: (067) 213720  
Fax: (067) 222502  
Director: Ing. Luis Borelli

DIRECCION PROVINCIAL  
DE OBRAS SANITARIAS  
DE SANTIAGO DEL  
ESTERO  
Libertad 638  
(1000) Santiago del  
Estero  
Tel: (085) 211288 /  
213205 / 215613 /  
221804  
Fax: (085) 211393  
Director: Ing. Juan Felipe  
Taboada

SERVICIOS PUBLICOS  
S.E.  
Roca 609, Piso 5°  
(9400) Río Gallegos  
Pcia. de Santa Cruz  
Tel: (0956) 22505 /  
21740  
Fax: (0956) 22903  
Director: Raúl Llacano

DIRECCION DE AGUA  
POTABLE Y  
SANEAMIENTO  
Samborombón 1602, Piso 3°  
(4600) San Salvador de  
Jujuy, Pcia. de Jujuy  
Tel: (0882) 29075 /  
25188 / 22-17 / 28785  
Fax: (0882) 29078  
Director: Ing. José Luis  
Gouldard

LIST OF GOVERNMENTAL ORGANIZATIONS







## SEWAGE (COMPANIES REQUIRING SERVICES AND TECHNOLOGIES)

### **OBRAS SANITARIAS**

#### **BUENOS AIRES**

Calle 5 N° 366

(1900) La Plata, Pcia. de Buenos Aires

Tel: (021) 21-6167/21-

1921/24-4355/21-7258

Fax: (021) 31841

Administrador General:

Contador Luis Sanguinetti

### **ENTE TRIPARTITO**

#### **OBRAS Y SERVICIOS**

#### **SANITARIOS (ETOSS)**

Av. Callao 976

(1023) Capital Federal

Tel: (01) 804-3505/804-

0860

Interventor: Ing. Eduardo

Cenallo

### **OBRAS SANITARIAS**

#### **CATAMARCA**

Rivadavia 365

(4700) S.F. de V. de

Catamarca, Pcia. de

Catamarca

Tel: (0833) 31212

Fax: (0833) 519548

Administrador: Ing. Jorge

Marcoli

### **DIRECCION PROVINCIAL**

#### **DE AGUA Y**

#### **SANEAMIENTO (DIPAS)**

Humberto Primo 604

(5000) Córdoba

Tel: (051) 220803 /

237900 / 233154

Fax: (051) 226119

Presidente: Ing. José

Bella

### **DIRECCION PROVINCIAL**

#### **DE OBRAS SANITARIAS**

#### **DE SANTA FE**

Patricio Cullen 6161,

Piso 1°

(3000) Santa Fe

Tel: (042) 60000

Fax: (042) 60066

Administrador: Dr.

Roberto Gaya

### **FEDERACION DE**

#### **COOPERATIVAS DE**

#### **AGUA POTABLE DE**

#### **MISIONES**

Río de la Plata 240

(3334) Puerto Rico, Pcia.

de Misiones

Tel: (0743) 20128

Fax: (0743) 20330

Presidente: Sr. Carlos

Gustavo Trovato

### **EMPRESA PROVINCIAL**

#### **DE AGUA Y**

#### **SANEAMIENTO (EPAS)**

Santiago del Estero 426

(8300) Neuquén

Tel: (099) 41402 int. 21

/ 5955/7

Fax: (099) 30413

Director: Ing. Enrique

Estevez

### **DIRECCION PROVINCIAL**

#### **DE AGUA DE RIO NEGRO**

San Martín 249

(8500) Viedma, Pcia. de

Río Negro

Tel: (0920) 25411 /

23456 / 217887

Fax: (0920) 23538

Subintendente: Fernando

Erico

### **DIRECCION PROVINCIAL**

#### **DE OBRAS SANITARIAS**

#### **DE SALTA**

España 877

(4400) Salta

Tel: (087) 212720

Fax: (087) 222602

Director: Ing. Luis Borelli

### **DIRECCION PROVINCIAL**

#### **DE OBRAS SANITARIAS**

#### **DE SANTIAGO DEL**

#### **ESTERO**

Libertad 688

(4200) Santiago del

Estero

Tel: (085) 211288 /

213205 / 215613 /

221804

Fax: (085) 211303

Director: Ing. Juan Felipe

Taboada

### **SERVICIOS PUBLICOS**

#### **S.E.**

Roca 669, Piso 5°

(9400) Río Gallegos,

Pcia. de Santa Cruz

Tel: (0966) 22505 /

21740

Fax: (0966) 22903

Director: Raúl Lascano

### **DIRECCION DE AGUA**

#### **POTABLE Y**

#### **SANEAMIENTO**

Santibañez 1602, Piso 3°

(4600) San Salvador de

Jujuy, Pcia. de Jujuy

Tel: (0882) 29076 /

25186 / 22417 / 28705

Fax: (0882) 29076

Director: Ing. José Luis

Izquierdo



**OBRAS SANITARIAS DE  
SAN JUAN S.E.**

O. I. de la Roza 272  
Oeste  
(5400) San Juan  
Tel: (064) 221490/93 /  
229684  
Fax: (064) 221493  
Presidente: Julio Alberto  
Cuatropani

**DIRECCION PROVINCIAL  
DE OBRAS SANITARIAS  
DE TUCUMAN**

Monteagudo 129  
(4000) San Miguel de  
Tucumán  
Tel: (081) 310458 /  
310297  
Fax: (081) 310297  
Director: Ing. Benjamín  
García Posse

**DIRECCION PROVINCIAL  
DE OBRAS Y SERVICIOS  
SANITARIOS DE  
USHUAIA**

Colón 133  
(9410) Ushuaia, Tierra  
del Fuego  
Tel: (0910) 21329 /  
21401 / 21421  
Fax: (0910) 21401  
Director: Ing. Carlos J.  
Gatica

**SERVICIO DE AGUA Y  
MANTENIMIENTO DE  
CHACO**

9 de Julio 788  
(3500) Resistencia, Pcia.  
del Chaco  
Tel: (0722) 21132 /  
23072 / 20012 / 22068

Fax: (0722) 24633  
Director: Ing. Alfredo  
Rezanowicz

**DIRECCION PROVINCIAL  
DE OBRAS SANITARIAS**

Buenos Aires 219  
(3100) Paraná, Pcia. de  
Entre Ríos: (043)  
216600 / 213920 /  
210033

Fax: (043) 216905  
Director: Ing. Carlos  
Alberto García

**ADMINISTRACION  
PROVINCIAL DEL AGUA  
LA PAMPA**

General Villegas 194  
(6300) Santa Rosa, Pcia.  
de La Pampa  
Tel: (0954) 23645 /  
23755 / 27046

Fax: (0954) 33896  
Administrador: Ing. Raúl  
Crespillo

**EMPRESA PROVINCIAL  
O.S. (EPOS) LA RIOJA**

J.V. González 9  
(5300) La Rioja  
Tel: (0822) 27041  
Director: Ing. Fernando  
de la Vega

**ADMINISTRACION  
PROVINCIAL DE OBRAS  
SANITARIAS (APOS)**

López y Planes 2577  
(3300) Posadas, Pcia. de  
Misiones  
Tel: (0752) 34489 /  
27813 / 28190 / 24378  
Fax: (0752) 33515  
Interventor: Ing. Luis  
Viana

**OBRAS SANITARIAS  
MENDOZA S.E.**

Belgrano 920  
(5500) Mendoza  
Tel: (061) 25-9326 / 23-  
2004 / 25-4324 / 25-  
4999  
Fax: (061) 23-3075  
Vicepresidente: Roberto  
José González

**ADMINISTRACION  
GENERAL OBRAS  
SANITARIAS FORMOSA**

Napoleón Uruburu 57  
Oeste  
(3600) Formosa  
Tel: (0717) 26759 /  
25891 / 29257  
Fax: (0717) 26739  
Gerente Comercial: Lic.  
Leonardo Micotero

**OBRAS SANITARIAS  
MAR DEL PLATA S.E.**

Santa Fe 2946  
(7600) Mar del plata,  
Pcia. de Buenos Aires  
Tel: (023) 37200 /  
30166 / 61-9648  
Presidente: Contador  
Albino Bianchini

**ENTE REGULADOR  
OBRAS SANITARIAS DE  
CORRIENTES**

Gdor. Pamfin 198  
(3400) Corrientes  
Tel: (0783) 25296  
Fax: (0783) 25296  
Administrador General:  
Ing. Manuel Fernando  
Sarno



## MINISTRIES

NOTE: Health authorities in each province.

**MINISTERIO DE SALUD  
PUBLICA Y ACCION  
SOCIAL DE LA NACION**  
9 de Julio 1925  
(1332) Capital Federal  
Tel: 334-3322/3308/3314  
Fax: 334-3322  
Ministro: Dr. Mazzo

**SECRETARIA DE SALUD  
PUBLICA DE FORMOSA**  
Santa Fé 1268  
(3600) Formosa  
Tel: (0717)  
27523/27515/26235  
Subsecretario: Dr. Rafael  
Abraham Serfati

**CONSEJO PROVINCIAL DE  
SALUD PUBLICA DE RIO  
NEGRO**  
Laprida 240  
(8500) Viedma, Pcia. de Río  
Negro  
Tel: (0920) 25-705  
Fax: (0920) 22-404  
Presidente: Sra. Lidia  
Morettini

**SECRETARIA DE SALUD  
PUBLICA DE SAN JUAN**  
Rivadavia 27, Oeste, Piso  
4°  
(5400) San Juan  
Tel: 064 22-9021  
Secretario: Sr. José Manuel  
Cívico

**SECRETARIA DE SALUD  
PUBLICA DE SANTA CRUZ**  
Salta 75  
(9400) Río Gallegos, Pcia.  
de Santa Cruz  
Tel: (0966) 20-494  
Fax: (0966) 20-535  
Secretario: Dr. Juan Carlos  
Nadalich

**SUBSECRETARIA DE  
SALUD PUBLICA DE  
TIERRA DEL FUEGO**  
Casa de Gobierno, San  
Martín 450, Piso 1°  
(9410) Ushuaia, Tierra del  
Fuego  
Tel: (09) 21-145  
Fax: (09) 21-106  
Subsecretario: Dr. Eladio  
José Somoza

**SUBSECRETARIO DE  
SALUD PUBLICA DE  
NEUQUEN**  
Oteringa 121  
(8300) Neuquén  
Tel: (099) 23-903  
Fax: (099) 23-902  
Subsecretario: Dr. Ricardo  
López

**SI - PROSALUD DEL  
CHUBUT**  
Moreno 555  
(9103) Rawson, Chubut  
Tel: (0965) 82-633  
Fax: (0965) 81-592  
Interventor: Dr. Jorge Lagos

**MINISTERIO DE SALUD  
PUBLICA DE MENDOZA**  
Palacio de Gobierno, Piso 5°  
(5500) Mendoza  
Fax: (0627) 24-7168  
Ministro: Dr. Héctor Enrique  
Wilde

**SUBSECRETARIO DE  
SALUD PUBLICA DE LA  
PAMPA**  
Centro Cívico Santa Rosa  
(6300) La Pampa  
Tel: (0954) 33-701, int.  
372  
Fax: (0954) 24-146  
Subsecretario: Sr. Dante  
Antonio Salazar

**MINISTERIO DE SALUD  
PUBLICA DE SALTO**  
Av. Belgrano 1349  
(2741) Salto, Provincia de  
Buenos Aires  
Tel: (087) 22-1861/21-  
8147  
Ministro: Dr. Gustavo  
Salazar

**MINISTERIO DE SALUD  
PUBLICA DE MISIONES**  
Junín y Tucumán  
(3300) Posadas, Pcia. de  
Misiones  
Tel: (0752) 31-308  
Ministro: Dr. Héctor Hugo  
Martínez

**MINISTERIO DE SALUD Y  
ACCION SOCIAL DE ENTRE  
RIOS**  
Palacio de Educación y  
Laprida  
(3100) Paraná, Pcia. de  
Entre Ríos  
Tel: (0442) 22-3887/22-  
5944  
Fax: (0442) 22-3887&22-  
5944  
Ministro: Dr. Jaime Gustavo  
Martínez Garbino

**MINISTERIO DE BIENESTAR  
SOCIAL DE JUJUY**  
Av. Italia esquina  
Independencia  
(4600) San Salvador de  
Jujuy  
Tel: (0882) 23-918/23-  
878/33-296  
Fax: (0882) 33-296  
Ministro: Ing. Jorge Oscar  
Leion

**MINISTERIO DE SALUD Y  
ACCION SOCIAL DE LA  
RIOJA**  
Pelagio B. Luna 336, Piso



1°  
(5300) La Rioja  
Tel: (0822) 2-7821  
Ministro: Dr. Mario A.  
Santander

**MINISTERIO DE SALUD DE  
SAN LUIS**

9 de Julio 934  
(5700) San Luis  
Tel: (0652) 2-4498 Int.370  
Secretario: Dr. Santiago  
Hernán Julio

**SUBSECRETARIO DE  
SALUD METROPOLITANA  
DEL CHACO**

M.T. de Alvear 151 (Casa  
de Gobierno)  
(3500) Resistencia, Pcia.  
del Chaco  
Tel: (0722) 2-2901/17 2-  
2931/32  
Fax: (0722) 3-0025/4205  
Subsecretario: Dr. Miguel  
Angel Bergemo

**SECRETARIA DE SALUD  
PUBLICA DE SANTIAGO  
DEL ESTERO**

Av. Belgrano Sud 2050  
(4300) Santiago del Estero  
Tel: (085) 22-1588  
Secretario: Dr. Angel  
Rosario Hunatore

**SISTEMA PROVINCIAL DE  
SALUD**

Rivadavia 196  
(4000) San Miguel de  
Tucumán, Pcia. de  
Tucumán  
Tel: 21-4604 / 21-8400  
Presidente: Dr. Luis Marcelo  
Zalarayan

**SUBSECRETARIA DE  
SALUD PUBLICA DE  
CATAMARCA**

Chacabuco 169  
(4700) Catamarca  
Tel: (0833) 25-308

Fax: (0833) 24-308  
Secretario: Dr. Arnoldo  
Víctor Castillo

**SECRETARIA DE SALUD  
PUBLICA DE CORDOBA**

Bulevar Chacabuco 1300  
(5000) Córdoba  
Tel: (051) 60-1574/0280  
Fax: (051) 60-3067  
Secretario: Dr. Leopoldo  
Héctor Cono

**CONSEJO  
INTERPROVINCIAL DE  
MINISTROS DE OBRAS  
PUBLICAS**

Ministerio de Obras y  
Servicios Públicos  
Yrigoyen 250  
(1407) Capital Federal  
Tel: 383-1151/1406/1155

**ENTE TRIPARTITO DE  
OBRAS Y SERVICIOS  
SANITARIOS (ETOSS)**

Callao 976, P.B.  
(1023) Capital Federal  
Tel: 804-3505/804-0860

**CEAMSE (COORDINACION  
ECOLOGICA AREA  
METROPOLITANA  
SOCIEDAD EL ESTADO)**

Av. Amancio Alcorta 3000  
(1437) Capital Federal  
Tel: 925-0017

**ENTE REGULADOR DE  
AGUA DE CORRIENTES  
S.A.**

Gobernador Penoen 198  
(3400) Corrientes

**OBRAS SANITARIAS MAR  
DEL PLATA S.E.**

Santa Fe 2846  
(7600) Mar del Plata, Pcia.  
de Buenos Aires

**COFAPYS**

Moreno 2038  
(1094) Capital Federal  
Tel: 952-3558/5252/6728  
Fax: 952-6728



## METALLURGICAL AND CHEMICAL INDUSTRIES

**ACEROS BRAGADO**  
S.A.C.I.F. (Steel Works)  
Barrido de Arroyo 190,  
Piso 9°  
Tel: 334-  
6104/7601/8947/1226/59  
52/2803/8363  
(1073) Capital Federal  
Fax: 334-8830  
Presidente: Sr. Bernardo  
Cala

**ACNOAR INDUSTRIA  
ARGENTINA DE ACEROS  
S.A. (Steel Works)**  
Av. Piazas Cohen 357  
(1063) Capital Federal  
Tel: 343-0171/2974  
5061/89331/6431/5438  
Fax: 331-8006  
Presidente: Sr. Carlos Llona

**E.V. S.A. GRIFLERIA (Metal  
Works)**  
Unidad 1534  
(1414) Capital Federal  
Tel: 71-7376/7589/73-  
6265/6519/5061  
Fax: 631-7512  
Presidente: Francisco  
Vieganer

**PADIP - FABRICA  
ARGENTINA DE  
INSTRUMENTOS DE  
PRECISION S.A. (Metal  
Works)**  
Av. Corrientes 319, Piso  
4°, of. 385  
(1319) Capital Federal  
Tel: 312-6729/7194  
Fax: 313-7013  
Presidente: Ing. Rafael Wolff

**FERRUM S.A. (Metal  
Works)**  
Espada 495  
(1870) Avellaneda, Pcia. de

Buenos Aires  
Tel: 201-8006/09  
Fax: 205-3802  
Presidente: Ing. Rodolfo  
Wiegand

**GALFEO ARGENTINA  
(CISA) S.A. (Metal Works)**  
José Rucchi 1051  
(1822) Valentín Alsina,  
Pcia. de Buenos Aires  
Tel: 208-5471/79  
Fax: 208-2517  
Presidente: Ing. Roberto  
Santiago Srank

**GUILLELMO GUCKER  
(Steel Works)**  
(1045) Capital Federal  
Tel: 331-1030/31-  
7041/49  
Presidente: Sr. Guillermo A.  
Gucker  
Presidente: Francisco Gola  
Manfred Gucker

**LA METALLURGICA  
INDUSTRIAL LAMPE, LUTZ  
Y CIA. SAIG (Metal Worker)**  
Av. Pavón 1310  
(1870) Avellaneda, Pcia. de  
Buenos Aires  
Tel: 208-1031/1637/3067  
Fax: 208-1637  
Presidente: Sr. Heinz Otto  
Lahme

**PROPULSORA  
SIDERURGICA S.A.I.C.  
(Steel Works)**  
Av. Leandria N. Alem 1057,  
Piso 22° y 23°  
(1001) Capital Federal  
Tel: 311-1030/312-  
7041/49  
Fax: 313-8343/6136/6088  
Presidente: Sr. Aguado

**BOSCH  
S.A.F. ARGENTINA S.A.  
(Metal Worker)**  
Pavón 545  
(1068) Capital Federal  
Tel: 331-3951/38  
Fax: 331-4022  
Presidentes: Sr. Raúl Gaspar

**SIDERCA S.A. (Steel  
Works)**  
Av. Leandria N. Alem 1057,  
Piso 22°  
(1001) Capital Federal  
Tel: 311-1030/31-  
7041/49  
Fax: 313-8343/6165/6088  
Presidente: Sr. Roberto

**TOOL RESEARCH  
ARGENTINA S.A.I.C. (Metal  
Works)**  
Av. Córdoba 657, Piso 12°  
(1054) Capital Federal  
Tel: 322-  
0254/0675/0280/2704/27-  
74/4891/4931  
Fax: 322-3489  
Presidente: Ing. Roberto  
Luis David

**ATANDR S.A. (Organic  
Chemicals)**  
Sarmiento 329  
(1043) Capital Federal  
Tel: 311-5394 / 312-3018  
Fax: 312-0913  
Presidente: Salvador L.  
Carlo

**AZYFER S.A. (Organic and  
Inorganic Chemicals)**  
Lavado 382, Piso 3°  
(1367) Capital Federal  
Tel: 383-6072/6037/6172  
Fax: 325-8669  
Presidente y Gerente

## EFFLUENT GENERATING INDUSTRIAL INSTALLATIONS







## METALLURGICAL AND CHEMICAL INDUSTRIES

### **ACEROS BRAGADO**

**S.A.C.I.F (Steel Works)**  
Bernardo de Irigoyen 190,  
Piso 9°  
Tel: 334-  
9104/7001/9347/1226/59  
52/5803/9353  
(1072) Capital Federal  
Fax: 334-8830  
Presidente: Lic. Bernardo  
Cale

### **ACINDAR INDUSTRIA ARGENTINA DE ACEROS S.A. (Steel Works)**

Av. Paseo Colón 357  
(1063) Capital Federal  
Tel: 343-0121/29/342-  
8081/89/331-8431/8439  
Fax: 331-8006  
Presidente: Sr. Carlos Lione

### **F.V. S.A. GRIFERIA (Metal Works)**

Uriarte 1534  
(1414) Capital Federal  
Tel: 71-7376/7989/72-  
6265/6519/8051  
Fax: 831-7912  
Presidente: Francisco  
Viegner

### **FADIP - FABRICA ARGENTINA DE INSTRUMENTOS DE PRECISION S.A. (Metal Works)**

Av. Corrientes 316, Piso  
4°, of. 456  
(1314) Capital Federal  
Tel: 312-6725/7794  
Fax: 313-7013  
Presidente: Ing. Rafael Bofill

### **FERRUM S.A. (Metal Works)**

España 496  
(1870) Avellaneda, Pcia. de

Buenos Aires  
Tel: 201-8006/09  
Fax: 205-3602  
Presidente: Ing. Rodolfo  
Viesgener

### **GALILEO ARGENTINA (CISA) S.A. (Metal Works)**

José Rucchi 1051  
(1822) Valentín Alsina,  
Pcia. de Buenos Aires  
Tel: 208-5471/79  
Fax: 208-2517  
Presidente: Ing. Roberto  
Santiago Srenk

### **GUILLERMO DECKER S.A.I.C.A.F.I. (Metal Works)**

Oswaldo Cruz 3101  
(1294) Capital Federal  
Tel: 28-5300/09  
Fax: 205-2517  
Presidente: Sr. Guillermo A.  
Decker  
Presidente Honorario: Clelia  
Mandry Decker

### **LA METALURGICA INDUSTRIAL LAMPE, LUTZ Y CIA. SAIC (Metal Works)**

Av. Pavón 1310  
(1870) Avellaneda, Pcia. de  
Buenos Aires  
Tel: 208-1031/1637/3087  
Fax: 208-1637  
Presidente: Sr. Heinz Otto  
Lehrke

### **PROPULSORA SIDERURGICA S.A.I.C. (Steel Works)**

Av. Leandro N. Alem 1067,  
Piso 22° y 23°  
(1001) Capital Federal  
Tel: 311-1090/312-  
7041/49  
Fax: 313-9343/6165/6066  
Presidente: Sr. Agustín

Rocca

### **S.K.F. ARGENTINA S.A. (Metal Works)**

Perú 545  
(1068) Capital Federal  
Tel: 331-3061/68  
Fax: 331-8622  
Presidente: Sr. Raúl Gaspar

### **SIDERCA S.A. (Steel Works)**

Av. Leandro N. Alem 1067,  
Piso 27°  
(1001) Capital Federal  
Tel: 311-1090/99  
Fax: 313-9343/6165/6066  
Presidente: Sr. Roberto  
Rocca

### **TOOL RESEARCH ARGENTINA S.A.I.C. (Metal Works)**

Av. Córdoba 657, Piso 12°  
(1054) Capital Federal  
Tel: 322-  
0054/0878/0980/2704/27  
74/4898/4931  
Fax: 322-3459  
Presidente: Ing. Roberto  
Luis Dadisi

### **ATANOR S.A. (Organic Chemicals)**

Sarmiento 329  
(1041) Capital Federal  
Tel: 311-5394 / 312-3016  
Fax: 312-0613  
Presidente: Salvador L.  
Carbó

### **AZYDER S.A. (Organic and Inorganic Chemicals)**

Lavalle 392, Piso 3°  
(1387) Capital Federal  
Tel: 393-6072/6097/6172  
Fax: 325-9689  
Presidente y Gerente



General: Miguel Blanco

**BASF ARGENTINA S.A.**  
(Polystyrene, Acrilics,  
Agrochemicals, Plastics)  
Av. Corrientes 327  
(1043) Capital Federal  
Tel: 312-9491 / 311-0017  
Fax: 312-8157  
Presidente: Walter Senfert

**CARBOCLOR INDUSTRIAS  
QUIMICAS S.A.I.C.**  
(Alcohols, Glycols, other  
Organic Chemicals)  
Tucumán 744, Piso 12°  
(1049) Capital Federal  
Tel: 325-8469/8474  
Fax: 334-5872  
Presidente: Arnoldo A.  
Gerotti

**CARBOQUIMICA  
ARGENTINA S.M. (Coal  
Based Chemicals)**  
Av. Córdoba 1351, Piso 6°  
(1055) Capital Federal  
Tel: 46-2854/2798  
Fax: 812-7304  
Presidente: Arq. Enrique  
María Castro Riglos

**COMPAÑIA CASCO  
S.A.I.C. (Alcohols, Resins,  
Adhesives)**  
Paseo Colón 728, Piso 8°  
(1063) Capital Federal  
Tel: 334-6722/6728/1424  
Fax: 331-2140  
Gerente General: Mariano  
A. Niveló

**DIRECCION GENERAL DE  
FABRICACIONES  
MILITARES**  
(Ammonia, Organic Acids  
Explosives)  
Cabildo 65  
(1426) Capital Federal  
Tel: 772-8091/9  
Fax: 771-6385 / 771-1940  
Interventor: Sr. Luis E.A.

Sarlenga

**DOW QUIMICA  
ARGENTINA S.A. (Organic  
Chemicals)**  
Leandro N. Alem 896  
(1001) Capital Federal  
Tel: 312-7021/9  
Fax: 311-9537  
Presidente: Oscar V.  
Vegnart

**DUPONT ARGENTINA S.A.**  
(Freon, Nylon, Poliethylene,  
Polipropylene)  
Av. Madero 1020  
(1106) Capital Federal  
Tel: 312-2011  
Fax: local: 311-9331  
Fax: internacional: 54-  
111/1329  
Presidente y Gerente  
General: Sr. Luis Ponferrada

**CARBOCLOR INDUSTRIAS  
QUIMICAS S.A.I.C.**  
(Organic Chemicals)  
Tucumán 744, Piso 12  
(1049) Capital Federal  
Tel: 325-8469/8474  
Fax: 334-5872  
Presidente: Arnoldo A.  
Girotti

**HOECHST ARGENTINA  
S.A. (Fine Chemicals,  
Pharmaceuticals)**  
Av. Intendente Tomkinson  
2054  
(1642) San Isidro, Pcia. de  
Buenos Aires  
Tel: 742-3036/38  
Fax: 742-3000  
Gerente de Compras: Lotar  
Kemper

**ICI DUPERIAL S.A.I.C.**  
(PVC - Agrochemicals -  
Pharmaceuticals -Organic  
Chemicals)  
Paseo Colón 285  
(1330) Capital Federal

Tel: 343-2011  
Fax: 331-0442  
Presidente: T. N. Hudson

**INDUSTRIAS QUIMICAS  
CARBINOL S.A.C.I.F.I.A.**  
(Plastics - Organic  
Chemicals)  
Esnaola 620  
(1405) Capital Federal  
Tel: 982-2289/2838/2647  
Fax: 981-7905  
Presidente: Enrique  
Puigbonet

**INDUSTRIAS QUIMICAS  
SALIX S.A.I. y C. (Fine  
Chemicals)**  
Sarmiento 329  
(1041) Capital Federal  
Tel: 311-5394 / 312-  
3016/4026  
Fax: 311-6830  
Gerente de Abastecimiento  
y Comercio Exterior:  
Orlando Femminini

**INDUPA S.A.I.C.**  
(Poliethylene - Organic  
Chemicals)  
Suipacha 636  
(1008) Capital Federal  
Tel: 325-1155/2332/7667  
Fax: 394-1955  
Presidente: Raimundo  
Richard

**IPAKO INDUSTRIAS  
PETROQUIMICAS  
ARGENTINAS S.A.**  
(Ethylene, Poliethylene)  
Av. de Mayo 701  
(1084) Capital Federal  
Tel: 34-6073/8445  
Fax: 334-5170/5173  
Presidente: Federico  
Zorraquín

**MANUFACTURA DE**



**FIBRAS SINTETICAS S.A.**  
**(MAFISA)**  
**(Synthetic Fibres)**  
Esmeralda 130, Piso 15°  
(1035) Capital Federal  
Tel: 394-  
1794/1813/2005/2030  
Fax: 322-5175  
Presidente: Jorge E. Curi

**MONOMEROS VINILICOS**  
**S.A. (Organic Chemicals)**  
Chacabuco 314, Piso 7°  
(1069) Capital Federal  
Tel: 343-9663/9444  
Fax: 343-9749  
Presidente: Jorge R. Galli

**MONSANTO ARGENTINA**  
**S.A.I.C.**  
**(Synthetic Fibres,**  
**Agrochemicals, Resins)**  
Maipú 1210, Piso 6°  
(1006) Capital Federal  
Tel: 313-2429/3156/4230  
Fax: 313-2429  
Presidente: Carlos Popik

**NEO PLAX S.A.C.I.F.I.A.**  
**(PVC, Resins, other Organic**  
**Chemicals)**  
Cerrito 1644  
(1832) Lomas de Zamora,  
Pcia. de Buenos Aires  
Tel: 244-0407/0881/4351  
Fax: 292-6108  
Presidente: Cesáreo Nuñez

**PASA PETROQUIMICA**  
**ARGENTINA S.A.I.C.F. y de**  
**M. (Petrochemicals)**  
Suipacha 1111, Piso 11°  
(1368) Capital Federal  
Tel: 311-4781/4 / 311-  
6081/4  
Fax: 311-6086  
Presidente: Rubén D.  
Puenteduro

**POLIBUTENOS**  
**ARGENTINOS S.A. (Organic**  
**Chemicals)**

Sarmiento 663, Piso 7°  
(1041) Capital Federal  
Tel: 311-0111/2002/1166  
/ 325-3211/39  
Fax local: 325-0239  
Fax internacional: 54-111-  
2122  
Presidente: Alejandro P.  
Bulgheroni

**PETROKEN PETROQUIMICA**  
**ENSENADA S.A.**  
**(Polipropylene)**  
Av. de Mayo 701, Piso 9°  
(1084) Capital Federal  
Tel: 334-2552/2831 - 342-  
3541  
Fax: 334-2552/5170/3  
Presidente: Alejandro M. de  
Achaval

**PETROPOL S.A.**  
**(Poliethylene)**  
Suipacha 636, Piso 3°  
(1008) Capital Federal  
Tel: 325-1551/2332/7667  
Fax: 394-1955  
Presidente: Raimundo  
Richard

**PETROQUIMICA BAHIA**  
**BLANCA S.A.I.C. P.B.B.**  
**(Ethylene, Propane)**  
25 de Mayo 555, Piso 9°  
(1002) Capital Federal  
Tel: 325-8458/59/60/61  
Fax: 313-2059  
Presidente: Norberto Schor

**PETROQUIMICA CUYO**  
**S.A.I.C. (Polipropylene)**  
J.D.Perón 646, Piso 8°  
(1038) Capital Federal  
Tel: 40-4091/3 331-9373  
Fax: 394-6940  
Presidente: Oscar A.  
Vicente

**PETROQUIMICA GENERAL**  
**MOSCONI S.A.I. y**  
**C.P.G.M. (Petrochemicals)**  
Perú 103, Piso 13 al 19

(1067) Capital Federal  
Tel: 331-  
5964/6140/6358/6422  
Fax: 331-  
5964/6140/6358/6422  
Presidente: Alfredo J.  
Connolly

**PETROQUIMICA RIO**  
**TERCERO S.A. - P.R.III**  
**(Petrochemicals)**  
Sarmiento 329, Piso 6°  
(1041) Capital Federal  
Tel: 312-5836 313-  
9772/9914  
Presidente: Salvador L.  
Carbó







## PAINT INDUSTRIES

### **AMERICAN TECH S.A.**

M.Balcarce, esq.  
Lebenson  
(1708) Barrio Gaona,  
Morón, Pcia. de Buenos  
Aires  
Tel: 62-1101  
Fax: 629-1101  
Gte.de Compras:  
González Barbieri

### **INDUSTRIAS CELOCRON S.A.**

Comandante Luceha 50  
(1870) Avellaneda, Pcia.  
de Buenos Aires  
Tel: 208-8018/9  
Fax: 2083411  
Gte.de Compras: Sr.  
Campello

### **CINTOPLOM S.A.**

Ombú 3808  
(1702) Ciudadela, Pcia.  
de Buenos Aires  
Tel: 657-1907  
Fax: 657-1907  
Gte.de Compras: Julio  
Ricardo García

### **RIBEPA S.A.**

Av.Bdo. Ader 1149  
(1607) Villa Adelina,  
Pcia. de Buenos Aires  
Tel: 766-7723  
Fax: 735-0012  
Gte.de Compras: Pablo  
Hertzules

### **COLORIN S.A.**

Juramento 5853  
(1605) Munro, Pcia. de  
Buenos Aires  
Tel: 762-0281/9

Fax: 756-0953

### **F.Y.D.P.I.S.A.**

Eduardo Madero 349  
(1752) Lomas del  
Mirador, Pcia. de Buenos  
Aires  
Tel: 683-0879 / 683-  
8622  
Fax: 682-0076  
Dto. de Seguridad e  
Higiene

### **GARCIA ALONSO S.A.I.C.**

Zapiola 4553  
(1876) Bernal Oeste,  
Pcia. de Buenos Aires  
Tel: 246-6865 / 246-  
0579  
Fax: 246-6954  
Gte.de Compras: Julio  
Rodríguez

### **HUGO RODRIGUEZ Y CIA.**

Arenales 1662, Piso 1º,  
A y B  
(1061) Capital Federal  
Tel: 42-1839 / 42-1846  
Fax: 42-1846  
Gte.de Compras: Sr.  
Jorge Roncozoni

### **I.A.T.I.L.O. S.A.**

Av. Ader 2749  
(1605) Munro, Pcia. de  
Buenos Aires  
Tel: 762-0057 / 762-  
4333  
Fax: 798-3088  
Gte.de Compras: Sr.  
Airdi

### **AKZO COATINGS S.A.**

Zufriategui 4501  
(1603) Villa Martelli,  
Pcia. de Buenos Aires  
Tel: 760-0059 / 760-  
8958  
Fax: 70-3788  
Gte.de Compras: Luis  
Ciclone

### **MUNDI S.A**

Posadas 2550  
(1650) San Martín, Pcia.  
de Buenos Aires  
Tel: 750-2886  
Fax: 759-4551  
Gte.de Compras:  
Sr.Eduardo Wilk

### **MAIDENOV Y CIA.**

Gral. Mansilla 3675  
(1870) Avellaneda. Pcia.  
de Buenos Aires  
Tel: 207-4439 / 207-  
6336  
Fax: 207-4205  
Gte.de Compras: Stilina  
CaraienefSINTEPLAST  
S.A.  
Palmar 666  
(1752) Lomas del  
Mirador, Pica. de Buenos  
Aires  
Tel: 441-6400 / 441-  
9171  
Fax: 441-6319

### **S.A. ALBA**

25 de Mayo 362  
(1027) Capital Federal  
Tel: 311-020 / 311-  
0700  
Fax: Int. 457



**SYNCO S.A.**  
Espora 333/44  
(1672) Villa Lynch. Pcia.  
de Buenos Aires  
Tel: 755-3650  
Fax: 754-4396  
Gte.de Compras:  
Alejandro Paulo Orezzaoli

**VILBA S.A.**  
Derqui 5053  
(1605) Carapachay, Pcia.  
de Buenos Aires  
Tel: 762-0264  
Fax: 756-3339  
Gte.de Compras:  
Manfield Durr

**QUIMICA DEL NORTE  
S.A.**  
Cuenca 812  
(1406) Capital Federal  
Tel: 613-0275  
Fax: 613-0275  
Gte.de Compras: Ing.  
Zuckerman

**INAVIMAR S.A.**  
Diagonal 62 N° 1865  
(1651) San Andrés, Pcia.  
de Buenos Aires  
Tel: 755-2705 / 755-  
8030  
Fax: 753-6877  
Gte.de Compras: Sr.  
Horacio Giles

**PREPAN S.A.I.C.I.Y.F.**  
Acasuso 1842  
(1667) Olivos, Pcia. de  
Buenos Aires  
Tel: 799-2021  
Fax: 799-5251

**BEST PAINT S.A.**  
Virrey del Pino 2458,  
Piso 4

(1426) Capital Federal  
Tel: 783-6419 / 783-  
6427

**INDUSTRIAS ELASTOM  
S.A.**  
Iriarte 3938  
(1437) Capital Federal  
Tel: 91-3470

**SHERWIN WILLIAMS  
ARG. S.A.**  
H.Yrigoyen 1579  
(1702) Ciudadela, Pcia.  
de Buenos Aires  
Tel: 653-7091/7095

**STEELCOTE S.A**  
Olazabal 5644  
(1431) Capital Federal  
Tel: 52-6484 / 51-4453



**PAPER - MILLS**

**AEROPEL S.A.C.I.F.**  
Ruta 9, Km. 32,500  
(1617) General Pacheco,  
Buenos Aires, Argentina  
Tel: 1 740-1822/2836  
Fax: 1 740-7863  
Presidente: Alberto  
Marchiano

**ANSABO S.C.A.**  
Dr.I.Iriarte 1257,Villa La  
Florida  
(1879) Quilmes, Bs.As.,  
Argentina  
Tel: 250-2905 250-2951  
Man.Dir.: Ricardo Marino  
Angeletti

**ARCOR S.A.I.C.**  
Esmeralda 130, Piso 21  
(1035) Buenos Aires,  
Argentina  
Tel: 394-5525 394-5538  
Fax: 394-3250  
Chmn.of the Board: Hugo  
D'Alessandro  
Man.Dir: José Giai

**BERAZATEGUI  
S.A.,PAPELERA**  
Av.G.Rigollau 2530  
(1884) Berazategui,  
Bs.As., Argentina  
Tel: 258-1139 258-2411  
Pres: Carlos O.Fusetti

**DENTI  
LTDA.EST.PAPELERS  
S.A.**  
Av.Directorio 5972  
(1440) Buenos Aires,  
Argentina

Tel: 687-2700/2800  
687-2880  
Director: Roberto  
Salvador Ale

**KANTOR S.A.I.C.**  
Almirante F.J.Seguí 1149  
(1416) Buenos Aires,  
Argentina  
Tel: 581-05810 581-  
1405  
Fax: 581-3375  
Presidente: Mario Kantor

**LATINA S.A., PAPELERA**  
Anchoris 365  
(1280) Buenos Aires,  
Argentina  
Tel: 26-8168  
Presidente: Héctor  
M.Salgado

**MAR DEL PLATA S.A.,  
PAPELERA**  
Esmeralda 672, Piso 2  
(1007) Buenos Aires,  
Argentina  
Tel: 322-0041 322-0050  
322-0059  
Fax: 322-0620  
Gte.Gral: Ing. Pablo Díaz  
Alberdi

**MASSUH S.A., PAPELES  
ESPECIALES DIV.**  
Rincón 3330  
(1754) San Justo,  
Buenos Aires, Argentina  
Tel: 1 441-0594 /1040  
Fax: 1 441-1388  
Mill Mar: Francisco A.  
Agostino

**MITRE S.A., PAPELERA**

Moreno y Dardo Rocha  
(1650) Gral.San Martín,  
Buenos Aires, Argentina  
Tel: 755-0496 755-5275  
Fax: 755-0496  
Gte.Gral: Eduardo Aceiro

**PAYSANDU S.A.I.C.,  
PAPELERA**  
Cnel.Rondeau 464  
(1875) Wilde, Buenos  
Aires, Argentina  
Tel: 1 207-8858  
Fax: 207-8858  
Presidente: Pedro  
Pompitio

**PLATA S.A.,LA  
PAPELERA DEL**  
Av.L.N.Alem 790, Piso  
10  
(1001) Buenos Aires,  
Argentina  
Tel: 1 311-5763 311-  
6941  
Fax: 1 312-3322  
Director: Enrique Zaldivar

**PRENSA S.A., PAPEL**  
Bartolome Mitre 739,  
Piso 2  
(1036) Buenos Aires,  
Argentina  
Tel: 343-1516 343-1519  
Fax: 331-1586  
Gte.Comercial: Alberto  
Cuesta

**SAN ISIDRO S.A.,  
PAPELERA**  
Av.Corrientes 456  
(1366) Buenos Aires,  
Argentina  
Tel: 1 325-6922 394-



8199

Fax: 1 325-6646

Vicepresidente: Daniel Sanjurjo

**SEIN Y CIA. S.A.**

Camino Gral. Belgrano,  
Km 30

(1886) Ranelagh, Buenos  
Aires, Argentina

Tel: 258-8305

Fax: int.13

Presidente: Raúl Sein

**ANTHONY BLANK Y CIA  
S.A.C.I.**

Av. Chorroarín 751

(1427) Capital Federal

Tel: 51-2851

Fax: 51-2859

Presidente: Héctor  
Granchi

**CELULOSA ARGENTINA  
S.A.**

Av. de Mayo 701, Pisos  
18° y 23°

(1084) Capital Federal

Tel: 331-

7623/7627/7645/7654

Fax: 331-7627

Presidente: Ing. Esteban  
Takacs



## PHARMACEUTICAL INDUSTRIES

### **ABBOT LABORATORIES ARGENTINA**

Sarmiento 1113, Piso 8°  
1041 Capital Federal  
Tel: 382-  
0567/0867/0917/1276/27  
80  
Fax: 382-9441

### **LABORATORIO ANDROMACO S.A.I.C.I.**

Ing. Huergo 1145  
(1047) Capital Federal  
Tel: 361-8171/8276/8572  
Fax: 32-0725  
Gerente General: Julio Tucci

### **ARGENTIA S.A.C.I.F.I.**

Almaro Barros 1113  
(1838) Luis Guillón, Pcia.  
de Buenos Aires  
Tel: 290-4614/4619  
Fax: 32-0725  
Gerente de Ventas: Sr.  
Burgui

### **LABORATORIO ARMSTROMG S.A.C.I.F.**

Joaquín V. González  
653/661  
1407 Capital Federal  
Tel: 69-5000/8/9  
Fax: 79-8730  
Jefe de Ventas: Armando  
Guerrero

### **ASTRO S.A. PROD. FARM. Y QUIM.**

Argerich 536  
(1706) Haedo, Pcia. de  
Buenos Aires  
Tel: 650-4071/78  
Fax: 650-9841  
Gerente de Compras: Sr.  
Néstor Maio

### **LABORATORIO BETA**

### **S.A.I.C.A.**

San Juan 2266  
1232 Capital Federal  
Tel: 941-  
1251/1351/1201/941-  
1001/1101  
Fax: 941-1411  
Gerente de Compras: Sr.  
Jorge Pérez

### **LABORATORIO CASASCO S.A.**

Administración y Ventas:  
Carabobo 22  
Planta: Boyacá 237  
1406 Capital Federal  
Tel: 631-0044/45 632-  
5091/93  
Fax: 633-2096  
Gerente de Compras: Sr.  
Alberto Casasco

### **CIBA-GELGY ARGENTINA S.A.I.C.Y.**

Arias 1851  
(1429) Capital Federal  
Tel: 701-2461/69 703-  
7000  
Fax: 703-7386  
Gerente de Compras: Sr.  
Mario Faig

### **GERARDO RAMON & CIA. S.A.I.Y.C.**

Int. Armando Avalos 4208  
(Ruta Panamericana y  
Paraná)  
(1605) Munro, Pcia. de  
Buenos Aires  
Tel: 762-0276/79 762-  
2750/2918/5051  
Fax: 803-6237  
Gerente de Compras: Sr.  
Andrés Folatelli

### **HOECHST ARGENTINA S.A.**

Avda. Int. Tomkinson 2054

(1642) San Isidro, Pcia. de  
Buenos Aires  
Tel: 742-3036/37/38  
Fax: 742-3013  
Gerente de Compras: Sr.  
Kaemper

### **LEPETIT S.A.Q.I.y C.**

N. L. Alem 896  
(1001) Capital Federal  
Tel: 312-7021/29  
Fax: 311-9577  
Gerente de Compras: Sr.  
Daniel Dalul

### **INSTITUTO MERIEUX S.A.**

Tacuarí 163, P.B.  
(1071) Capital Federal  
Tel: 334-6165/0913/2507  
Fax: 334-6165  
Gerente de Compras: Dr.  
Gabriel Capitelli

### **ODOL S.A.I.Y.C.**

Viamonte 1465  
(1055) Capital Federal  
Tel: 49-8401/05 476-  
6051/54 int. 49  
Fax: 40-3773  
Gerente de Compras: Sr. de  
Ritio

### **P.L.RIVERO & CIA. S.A.I.Y.C.**

Av. Bocayá 419  
(1406) Capital Federal  
Tel: 631-2901/9947/4824  
Fax: (541) 118129  
Gerente de Compras:  
Enrique López



**PRODUCTOS ROCHE S.A.  
QUIMICA E INDUSTRIAL**  
Fray Justo Sarmiento 2350  
(1636) Vicente López, Pcia.  
de Buenos Aires  
Tel: 797-2050/9  
Fax: 790-2101  
Gerente de Compras: Sr.  
Julio Carli

**SANCOR**  
Tacuarí 202  
(1071) Capital Federal  
Tel: 342-  
3297/3483/3383/3621  
Fax: 0493-21158 (Chales  
Santa Fé)  
Gerente de Compras: Ing.  
Russemerger

**SANDOZ ARGENTINA  
S.A.I.C.**  
Paraná 3617  
(1640) Martínez, Pcia. de  
Buenos Aires  
Tel: 792-4041/5  
Fax: 798-1019

**SCHERING ARGENTINA  
S.A.I.C.**  
Monroe 1378  
(1428) Capital Federal  
Tel: 784-0071/77 786-  
1535  
Fax: 786-1386  
Gerente de Compras: Sr.  
Carlos Bollini

**LABORATORIOS SINTYAL**  
Carlos Berg 3669  
(1437) Capital Federal  
Tel: 923-5021/5  
Fax: 924-1946  
Gerente de Compras: Sr.  
Tomsin

**STERLING PRODUCTS  
ARGENTINA S.A.**  
Carlos Casares 3690  
(1644) Victoria, Pcia. de  
Buenos Aires  
Tel: 744-5061/69  
Fax: 746-2044  
Gerente de Compras:  
Andrés Tagez



## EQUIPMENT AND MATERIALS

### **ACINDAR S.A. (Steel industry)**

Paseo Colón 357  
(1063) Buenos Aires  
Tel. Adm.: 331-8431 39-  
331-8451/59 30-0121/29  
34-8081/89  
Presidente: Alcidez López  
Aufranc  
Planta N° 1: Dr. L. Arieta  
4936  
(1766) Tablada,  
Pcia. Buenos Aires  
Tel: 651-051/59 651-  
0070/0089 657-  
3180/3244/6749/6816  
Planta N° 2: Ruta Prov. 21  
km 247  
(2919) Villa Constitución,  
Pcia. Santa Fe  
Tel: 74099-74198-74396-  
74495-74421/28/29  
Ing. Arturo Acevedo

### **ARMCO ARGENTINA S.A. (Metalurgical industry - steel pipes)**

Valentín Gómez 214  
(1706) Haedo, Pcia. de  
Buenos Aires  
Tel: 628-  
8922/8972/8975/8918/80  
02/8996/8944  
Fax: 628-9021  
Presidente: Sr. Joaquín  
Goiriz

### **CAMSA COMPAÑIA ARGENTINA DE MEDIDORES (pipes - Industrial Services)**

Rep. Oriental del Uruguay  
5010  
(1766) Tablada, Pcia. de

Buenos Aires  
Tel: 651-2216/0396/3503  
Gte. Ccial: Ing. Raul C.  
Panigutti

### **DISTRIMED S.A. (Industrial Services)**

(Gauges, pumps, dosifiers)  
Montevideo 765, Piso 8° B  
(1019) Buenos Aires  
Tel: 42-5467 42-5413  
Calle 36 N° 567  
(1900) La Plata  
Tel:  
(021)242613/215830/430  
71  
Presidente: Ricardo Tomeo

### **FILSAN ARGENTINA S.A. (Industrial Services)**

(Equipment for water and  
waste treatment)  
Av. Córdoba 1367, Piso 10  
(1055) Buenos Aires  
Fax: (54-1)322-8477  
Presidente: Ing. Roberto  
Derosa

### **GRUPO AMERICANO DE INTERCAMBIO S.A. (Industrial Services)**

(Equipment for water and  
waste treatment)  
Uruguay 654, Piso 2,  
Oficina 211  
(1015) Buenos Aires  
Tel: 46-8490/8738 40-  
9763  
Presidente: Sr. Francisco  
Paulik

**HUBERMANS S.A.  
(Hydroelectric services)  
(Hydraulic pumps)  
Perú 275**

(1067) Buenos Aires  
Tel: 30-8000/7930/ 34-  
4982/9149  
Fax: 54-1-30-7734  
Gtes. Cciales: Arq. Pablo  
Smulevich, Ing. Carlos  
Paleordet

### **INGENIERIA PRENTA S.A. (Industrial Services) (Flow rate measuring services)**

Venezuela 634, Piso 3,  
Of. 15  
(1095) Buenos Aires  
Tel: 34-0769 34-8386  
Gte. Gral.: Ing. Carlos M.  
Brasesco

### **LUIS O. D. SCORZA Y CIA. S.A. (Industrial Services) (Waste processing equipment)**

Ruta 9 Km 627  
(5986) Oncativo, Córdoba  
Tel:  
(0572)66092/66192/6689  
8  
Presidente: Silvia Ana  
Scorza de Demaría

### **PHLOX EXIBRO S.A. (Industrial Services) (Water treatment plants)**

Lima 87  
(1073) Buenos Aires  
Tel: 37-8886/9289 38-  
7975/8196  
Fax: 37-1022  
Presidente: Ing. Carlos  
Lyungmann



**LA EBONITA ARGENTINA S.A. (Industrial Services)**  
(Anti-rust coating materials)  
Av. Crovara 4001/31  
(1766) Tablada, Pcia. de Buenos Aires  
Tel: 652-6446 652-2964

**MOTORARG S.A.I.C.F.I.A. (Industrial Services - Pumps)**  
Tacuarí 531  
(1071) Buenos Aires  
Tel: 334-4543/6189/7405/1097/3689

**POLARCO S.A. (Industrial Services)**  
(Chemical products for water treatment)  
Entre Ríos 1049, Piso 14 Of.13  
(1080) Buenos Aires  
Tel: 27-1689

**SEBASTIAN MARONESE E HIJOS S.A. (Industrial Services)**  
(Prestressed concrete pipes)  
Maipú 267  
(1084) Buenos Aires  
Tel: 40-2266/2229/2333  
45-8919 46-5142  
Fax: (541)11-1524 y 46-6011

**TODOHIDRO S.A. (Industrial Services)**  
(Polyethylene waterproof coatings)  
Av. Mariano Acosta 3041  
(1437) Buenos Aires  
Tel: 923-1413/3026/3027/3028

**VALAM S.A.I.C. (Industrial**

**Services)**  
(Diaphragm valves)  
Boulevard de los Italianos 536  
(1875) Wilde, Pcia. de Buenos Aires  
Tel: 207-6616/6622/6574/7047/7215

**POWER PROTECTION S.A. (Industrial Services)**  
(Prestressed concrete pipes)  
Moreno 455, Piso 9° A  
(1066) Buenos Aires  
Tel: 331-9017 34-2405  
Presidente: Sr. Ricardo G. Dychter

**SEMPERE S.A. (Industrial Services)**  
(Water aerators)  
Av. Centenario 3405  
(1878) Quilmes, Pcia. de Buenos Aires  
Tel: 253-4066/7/8/9 253-4076/7/8/9  
Bmé. Mitre 3646  
(1201) Capital Federal  
Tel: 87-2867 87-8453  
Presidente: Rafael L. Sempere

**TOVER S.A. (Industrial Services)**  
(Water processing equipment)  
Montevideo 765, Piso 8°, Of.B  
(1019) Buenos Aires  
Tel: 42-5412/13  
Calle 36 N° 567  
(1900) La Plata  
Tel: (021) 242613/4-3071/215830  
Fax: (021)3-7325  
Presidente: Ing. E. Venturini

**ARMANDO F. GENTILE S.A. (Industrial Services)**  
(Pipes and flow meters)  
Piedras 646  
(1070) Buenos Aires  
Tel: 362-8583/8185/8285

**WORTHINGTON ARGENTINA S.A. (Industrial Services - Pumps)**  
Córdoba 2953  
(1640) Martínez, Pcia. de Buenos Aires  
Casilla de Correo (3590)  
Tel: 792-1273/3537/5344/0911  
798-5945  
Fax: 793-0753

**DEGREMONT S.A. (Water softeners and aerators)**  
Talcahuano 718  
(1013) Capital Federal  
Tel: 49-7201/7211 / 372-9342 / 476-3273



PROFESSIONALS

CONSEJO PROFESIONAL DE INGENIERIA QUIMICA

Julio A. Roca 584 (1667) Capital Federal Tel: 381-8796/4201 / 383-7256 Fax: 331-2304

ASOCIACION QUIMICA ARGENTINA

Sanchez de Bustamante 1749 (1425) Capital Federal Tel: 83-4886 / 824-4096/7986

CONFEDERACION GENERAL ECONOMICA DE LA REPUBLICA ARGENTINA

Av. Rivadavia 1115 (1033) Capital Federal Tel: 381-6928/6379/7369/1145/5576

CONSEJO PROFESIONAL DE INGENIEROS

Bartolomé Mitre 1470 (1037) Capital Federal Tel: 381-8796/4201 / 37-7256

CAMARA ARGENTINA DE LA CONSTRUCCION (Professional association)

Paseo Colón 823 (1063) Capital Federal Tel: 361-8778/5036 Fax: 361-5130



## PRIVATE HOSPITALS AND SANATORIA

Note: This is a list of hospitals for the city of Buenos Aires

**CLINICA DE LA CIUDAD S.A.**  
A. Machado 66  
(1405) Capital Federal  
Tel: 862-0142/8447/8440  
Fax: 862-0205  
Director: Dr. Daniel Tedín

**CLINICA DEL SOL**  
Arenales 1468  
(1061) Capital Federal  
Tel: 811-1031/1038  
Fax: 811-1031 int. 3005  
Director: Dr. Viccor

**CLINICA LA SAGRADA FAMILIA**  
J. Hernández 1642  
(1426) Capital Federal  
Tel: 788-1207/1206/1800/1294  
Fax: 788-1262  
Director: Dr. Matta

**CLINICA MATERNIDAD SUIZO ARGENTINA**  
Av. Pueyrredón 1461  
(1118) Capital Federal  
Tel: 806-1313/1414/1515/1616  
Fax: 814-4509

**CLINICA JURI DE CIRUGIA PLASTICA DR. JOSE JURI**  
Cerviño 3267  
(1425) Capital Federal  
Tel: 802-9755/7780  
Fax: 803-0561  
Presidente: Dr. José Juri

**CLINICA BAZTERRICA**  
Juncal 3002  
(1425) Capital Federal  
Tel: 824-3011/0010/6587  
Fax: 826-7616

**CLINICA LAS HERAS S.A.**  
Av. Las Heras 2492  
(1425) Capital Federal  
Tel: 801-8624  
Fax: 803-5689

**SANATORIO ANCHORENA S.A.**  
T.M. Anchorena 1822  
(1425) Capital Federal  
Tel: 806-2010/2011/2012/2013  
Fax: 806-5084

**SANATORIO MATER DEI**  
San Martín de Tours 2952  
(1425) Capital Federal  
Tel: 801-8077/8070/8079/8076  
Fax: 801-8077

**SANATORIO OTAMENDI Y MIROLI S.A.**  
Azcuénzaga 868  
(1115) Capital Federal  
Tel: 961-9611/4061/4062  
Fax: 961-9611

**SANATORIO SAN PATRICIO**  
Condarco 15  
(1406) Capital Federal  
Tel: 613-6199/6120/6130  
Fax: 612-8059

**SANATORIO SANTA CECILIA S.A.**  
Av. Corrales 7065  
(1439) Capital Federal  
Tel: 687-5622/5722  
Fax: 687-5622

**SANATORIO SANTA ISABEL**  
Lautaro 369

(1406) Capital Federal  
Tel: 633-4800/0808  
Fax: 633-0601

**HOSPITAL ALEMAN**  
Av. Pueyrredón 1640  
(1425) Capital Federal  
Tel: 821-9663/69  
Fax: 821-7661/66

**HOSPITAL BRITANICO DE BUENOS AIRES**  
Pedriel 74  
(1437) Capital Federal  
Tel: 304-1081/89

**HOSPITAL DE NIÑOS PEDRO DE ELIZALDE**  
Av. Montes de Oca 40  
(1270) Capital Federal  
Tel: 28-0056

**HOSPITAL ESPAÑOL**  
Av. Belgrano 2975  
(1209) Capital Federal  
Tel: 97-1061/1069/1073  
Fax: 97-9617



## TANNERIES

Note: This is a list of major tanneries in Argentina

**COMPAÑIA INDUSTRIAL DEL CUERO**  
Balbastro 950,  
(1424) Capital Federal  
Tel: 923-2031/33  
Presidente: Komppany,  
Eugenio Juan

**COPLINCO S.A.**  
Sanchez de Bustamante 64  
(1173) Capital Federal  
Tel: 88-  
1043/45/5385/9254  
Presidente: Stintznagel,  
Carlos Ernesto

**NORCUER S.A.**  
Reconquista 737  
(1003) Capital Federal  
Tel: 311-1229  
Presidente: Dalla Fontana,  
Pedro Gerardo

**ARKE S.R.L.**  
Paysandú 425  
(1874) Wilde, Pcia de  
Buenos Aires  
Tel: 207-2757/3340  
Fax: 207-0344

**BENINCA DE PONTI Y CIA S.A.I.C.**  
Garibaldi 1810  
(2300) Rafaela, Pcia de  
Santa Fé  
Tel: 0492-24616/24335

**CUEROS KOCHEN S.A.C.I.**  
Lerna 60  
(1414) Capital Federal  
Tel: 89-8004/87-8786  
Fax: 865-3672

**CURTIEMBRE EL OESTE SANTAFECINO S.A.**  
Av. Julio A. Roca 636, Piso  
5º  
(1067) Capital Federal

Tel: 343-6271 / 334-  
3081/88  
Fax: 334-8203

**FLORES S.A.I.C. y F.**  
Solares 350  
(5000) Córdoba  
Tel: 051-558514 / 555334

**FONSECA S.A.C.I.**  
C. Pellegrini 1363, Piso 6º  
"10"  
(1011) Capital Federal  
Tel: 322-9421/9359

**FONTELO Y CIA.**  
Juan Farrel 2349  
(1824) Lanús, Pcia. de  
Buenos Aires  
Tel: 209-4029/4998  
Fax: 209-4029

**LA FEDERAL S.A.**  
Maestra Manuela García  
1413  
(1643) Beccar, Pcia. de  
Buenos Aires  
Tel: 747-9208  
Fax: 743-6526

**LA GENERAL PAZ S.A.**  
Av. General Paz 14412/82  
(1439) Capital Federal  
Tel: 601-6571/6791  
Fax: 953-4458

**LAS ROSAS S.A.**  
Santiago 601  
(2000) Rosario, Pcia. de  
Santa Fe  
Tel: 041-258552  
Fax: 041-258479

**FAMAD S.A.**  
Lapuente 3751  
(1874) Villa Domínico, Pcia.  
de Buenos Aires

Tel: 207-4847/3082  
Fax: 207-1623

**MEPER S.A.**  
Pte. Perón 444, Piso 3º  
(1038) Capital Federal  
Tel: 343-0490/99  
Fax: 331-4608

**NATALE CUEROS S.A.**  
Heredia 2655  
(1872) Sadandí, Pcia. de  
Buenos Aires  
Tel: 205-3138  
**PELICCE S.A.**  
Cnel. García 331/345  
(1870) Avellaneda, Pcia. de  
Buenos Aires  
Tel: 201-9397 / 741-0437  
/ 748-3075

**PETRUZZIELO HNOS. S.R.L.**  
Viamonte 3054/72  
(1822) Valentín Alsina,  
Pcia. de Buenos Aires  
Tel: 208-3732/6965  
Fax: 208-3732



## SLAUGHTERHOUSES

Note: This is a list of major slaughterhouses in Argentina and is far from exhaustive.

**COMPAÑIA  
ELABORADORA DE  
PRODUCTOS ANIMALES  
S.A.**

Maipú 215, Piso 5°  
(1084) Capital Federal  
Tel: 40-8211/45-  
0228/2883/9831/35  
Fax: 46-8908  
Presidente: Moche, Juan  
Terencio

**FRIGORIFICO  
MINGUILLON S.A.C.I.F.**

El Cañón y José Carlos  
Paz  
(1744) Moreno, Pcia de  
Buenos Aires  
Tel: (0228) 23-5036/23-  
507

**A. MELLINO S.A.C.I.F.I.**

Colonia 461  
(1437) Capital Federal

**FRIGORIFICO RIO  
PLATENSE S.A.I.C.I.F.**

Ruta 9 km 32.500  
(1617) Gral. Pacheco, Pcia  
de Buenos Aires

**FRIGORIFICO HUGES**

Hipólito Yrigoyen 584, piso  
11°  
(1086) Capital Federal

**FRIGORIFICO RIO IV S.A.**

Dirección Postal Sucursal  
N°3 C.C. N° 51  
(5800) Rfo Cuarto, Pcia de  
Córdoba

**FRIGORIFICO FINEXCOR  
S.A.**

Cte. Franco 4901  
(1876) Bernal O, Pcia de  
Buenos Aires

**FRIGORIFICO RAMALLO  
S.A.**

Ricardo Rojas 401, Piso 3°  
(1001) Capital Federal

**FRIGORIFICO 144, LA  
FLOR DE OVIERO S.R.L.**

Francisco 5850  
(1440) Capital Federal

**FRIGORIFICO TRES  
CRUCES S.A.I.C.F.**

Av. Francisco Beiró 4067  
(1419) Capital Federal

**FRIGORIFICO SAN TELMO  
S.A.C.I.A.F.I.F.**

Lavalle 482  
(1047) Capital Federal

**FRIGORIFICO Y  
MATADERO LA FORESTA  
S.C.P.A.**

L. de la Torre 2237  
(1440) Capital Federal

**FRIGORIFICO SIRACUSA  
S.A.**

Av. de Mayo 605, Piso 10°  
(1084) Capital Federal

**FRIGORIFICO FERRARI  
S.A.I.C.A.**

V. Gómez 3831  
(1191) Capital Federal

**FRIGORIFICO BLOCK S.A.**

Murgiondo 1846/56  
(1440) Capital Federal

**LA POMPEYA S.A.**

Murguiondo 2060

(1440) Capital Federal

**QUICK FOOD S.R.L.**

Fondo de la Legua 1690  
(1640) Martínez, Pcia de  
Buenos Aires

**SAN SEBASTIAN**

**S.A.I.C.I.F.A.**

Tacuarí 371  
(1071) Capital Federal

**SAN JORGE S.A.**

Av. Santa Fe 846  
(1059) Capital Federal

**SUBPGA**

Av. Córdoba 629  
(1054) Capital Federal

**SWIFT - ARMOUR S.A.  
ARGENTINA**

Av. Leandro N. Alem 986,  
Piso 1°  
(1001) Capital Federal

**VATTIMO DANTE Y  
AMADEO**

Rivadavia 1345/47  
(1646) San Fernando, Pcia  
de Buenos Aires



## CONSULTANTS

EMPRESA GEOPISICA NOBEL MUÑOZ  
S.R.L.  
Avda. Corrientes 4005, Piso 3, oficina 32  
(1134) Buenos Aires  
Tel: 59-8348 86-0482  
Socio Gerentes: Ing. Agr. Elcisa Monica  
Muñoz, Lic. Cepl. Roberto Nobel Muñoz

AMBIENTAL S.A.  
Córdoba 988, piso 8  
(1054) Capital Federal  
Tel: 322-2520/6513  
Fax: 322-5448  
Presidente: Ing. Emilio Apud  
Vicepresidentes: Dr. Carlos Adlstein

ENS+INGENIERIA S.R.L.  
Belgrano 1380, Piso 3  
(1093) Buenos Aires  
Tel: 381-8273  
Fax: 381-5827  
Socio Gerentes: Ing. Alberto Uruti, Eduardo  
Ravera

## SERVICE SUPPLIERS

I.M.P. CONSULTORA EN MEDIO AMBIENTE  
S.A.  
Arcos 1378  
(1426) Buenos Aires  
Tel: 734-2071-781-8135  
Presidente: Beatriz Y. A. Ferrer de Martínez  
Prieto

INGENIEROS CONSULTORES HORGSD  
ARGENTINA S.A.  
Tacuar 32, Piso 4  
(1071) Buenos Aires  
Tel: 34-7509 34-6877  
Facsimil: 34-3128727  
Presidente: Ing. Alberto Coriozola

LATINDOCHEULT S.A.  
Suipacha 1067, Piso 3  
(1008) Buenos Aires  
Tel: 313-3515 313-6927  
Fax: 313-4713  
Presidente: Ing. Anirés Mattana Susardi

ROBERTO S. NOYA Y ASOCIADOS S.A.  
Carlos Pellegrini 145, Piso 3, Dto. A  
(1009) Buenos Aires  
Tel: 322-2577 322-6976  
Presidente: Ramón Santiago Noya







## CONSULTANTS

### **EMPRESA GEOFISICA NOBEL MUÑOZ S.R.L.**

Avda. Corrientes 4006, Piso 3, oficina 32  
(1194) Buenos Aires  
Tel: 89-8266 86-0462  
Socio-Gerentes: Ing. Agr. Eloiso Monico  
Muñoz, Lic. Geol. Roberto Nobel Muñoz

### **ENE-I INGENIERIA S.R.L.**

Belgrano 1580, Piso 3  
(1093) Buenos Aires  
Tel: 381-6273  
Fax: 381-5827  
Socio-Gerentes: Ing. Alberto Urruti, Eduardo  
Ravena

### **I.M.P. CONSULTORA EN MEDIO AMBIENTE S.A.**

Arcos 1378  
(1426) Buenos Aires  
Tel: 784-2071 781-8135  
Presidente: Beatriz Y. A. Ferrer de Martínez  
Prieto

### **INGENIEROS CONSULTORES HIDROSUD ARGENTINA S.A.**

Tacuar 32, Piso 4  
(1071) Buenos Aires  
Tel: 34-7399 34-6877  
Facsimil: 541-3128727  
Presidente: Ing. Alberto Odriozola

### **LATINOCONSULT S.A.**

Suipacha 1067, Piso 3  
(1008) Buenos Aires  
Tel: 313-3519 313-6937  
Fax: 313-4718  
Presidente: Ing. Andrés Mattana Besozzi

### **ROMULO S.NOYA Y ASOCIADOS S.A.**

Carlos Pellegrini 445, Piso 5, Dto. A  
(1009) Buenos Aires  
Tel: 322-2577 322-6776  
Presidente: Rómulo Santiago Noya

### **AMBIENTAL S.A.**

Córdoba 966, piso 6  
(1054) Capital Federal  
Tel: 322-2520/5513  
Fax: 322-5446  
Presidente: Ing. Emilio Apud  
Vicepresidente: Dr. Carlos Adlerstein



## CONTRACTORS

### ASEO S.A.

Pedro de Luján 2590  
(1294) Buenos Aires  
Tel: 28-  
4246/9794/9796/9788  
Gerente Gral: Ing. Roberto A.  
Cid

### CLIBO INGENIERIA AMBIENTAL S.A.

MANDATARIO DE: BENITO  
ROGGIO E HIJOS S.A. -  
ORMOS S.A.I.C.I.C  
Leandro N. Alem 1050, Piso 9  
(1002) Buenos Aires  
Base Operativa: Paso 1412  
(1702) Ciudadela, Buenos  
Aires  
Presidente: Cont. Roberto  
Macios

### CLIMA - INGENIERIA AMBIENTAL BENITO ROGGIO E HIJOS S.A.

LERMAS S.A.I.C.I.C.U.T.E.  
Base Operativa:  
Av. Circunvalación S/N  
(5016) Córdoba  
Tel: (051) 61212/65704  
Directores: Cont. Roberto  
Macios, Cont. Pablo Bobadillo

### DEGREMONT S.A.

Talcahuano 718, Piso 6  
(1013) Buenos Aires  
Tel: 49-7201 49-7211  
Telefax Nacional: 45-0728  
Telefax Int.: 54-111-1467  
Presidente: Ing. Hugo C.  
Maffei

### E.A.C.A.

EMPRESA ARGENTINO DE  
CEMENTO ARMADO  
SOCIEDAD ANONIMA DE  
CONSTRUCCIONES  
Piedras 383  
(1070) Buenos Aires

Tel: 34-

1078/1271/1324/2222/5252

Fax: 331-9839

Presidente: Ing. Mateo  
Roberto Gorostiaga

### HIDRAULICA MILETO S.A.C.I. INGENIERIA SANITARIA E INDUSTRIAL

Av. L.N. Alem 1002, Piso 3  
(1001) Buenos Aires  
Casilla de Correo 1570, 1000  
Correo Central  
Tel: 313-2700 313-2847  
313-2853  
Telefax: 54.1.313-2853  
Presidente: Dr. Oscar Cuper  
Planta Industrial: Gral. Hornos  
1246  
(1272) Buenos Aires  
Tel: 28-1023

### HUAYQUI S.A. DE CONSTRUCCIONES

Calle Diagonal 79 Nro.910  
(1900) La Plata, Pcia. de  
Buenos Aires  
Tel: 24-4523/5 24-9044/7 /  
23-7399-4-7380  
Paraguay 754, 2º Cuerpo,  
Piso 3º A  
(1057) Buenos Aires  
Tel: 311-0777 312-3860

### IDRECO SUDAMERICANO S.A.

Suipacha 612, Piso 2  
(1008) Buenos Aires  
Tel: 393-7622 392-7764  
Presidente: Ing. Eduardo  
Camissasa

### INGENIERO OSCAR A. DIEZ S.A.I.Y.C.

Calle 7 Nro.1076, Piso 10  
(1900) La Plata, Prov. de  
Buenos Aires  
Tel: (021) 3-9042 / 21-  
3297

Presidencia: Ing. Oscar A.  
Diez

### LOCKWOOD & CIA S.A.I.C.

Av. Gral. Paz 14262  
(1439) Buenos Aires  
Tel: 687-6016 / 687-1071  
Telefax: 54-1-11-2162  
Presidente: Sr. Enrique  
Arntsen

### RUSALCO S.A.

Av. L. N. Alem 592  
(1001) Buenos Aires  
Tel: 312-9071/7  
Telefax: 313-1961  
Presidente: Dr. Alberto  
Shebor

### SUPERCEMENTO S.A.I.C.

Olazabal 2877  
(1428) Buenos Aires  
Tel: 781-4071/79  
Fax: 781-9603  
Presidente: Sr. Julián  
Astolfoni

### SYUSA SANEAMIENTO Y URBANIZACION S.A.

Domicilio Comercial: Av.  
Belgrano 327  
(1092) Buenos Aires  
Tel: 34-0159 331-0663 30-  
5051  
Presidente: Ing. Andrea  
Bacchelei

### TECHINT COMPAÑIA TECNICA INTERNACIONAL S.A.C.I.

Carlos M. della Paolera 299  
(1001) Buenos Aires  
Tel: 313-0040 313-0800  
Fax: 313-0455  
Presidente Honorario: Ing.  
Roberto Rocca  
Presidente: Ing. Andrea  
Bacchelli, Ing. Carlos María  
Bello



## LEGAL FRAMEWORK

### 1. INSTITUTIONAL AND LEGAL ASPECTS OF ENVIRONMENTAL PROBLEMS

In order to fulfil the requirements as stated by Secretary of Foreign Affairs of the Government of Canada, a study was performed on the legislation ruling the Environment and development.

## APPENDIX 3

According to the political and institutional configuration corresponding to the federal form adopted by Argentina, it may be considered that the rule consists of the existence of jurisdictions which are shared between the Nation, the Provinces and the Municipalities. Regulations are reported in such a way that the different authorities can act harmoniously, avoiding interferences. It might increase the powers of the central government, to the detriment of provincial or municipal faculties, or viceversa.

## FRAMEWORK

In turn, there are national, provincial and municipal organizations in charge of the administration of the Environment, as well as laws or ordinances on the subject, which state the respective competences and the legislative scope of each one of these jurisdictional levels: national, provincial and municipal, which exercise functions related to the region's natural resources, either in the design of policies and strategies or in their management and preservation. Thus, a good regulation coverage is guaranteed.

In general, up to the last decade, environmental issues were managed as from a national political perspective; each one of the resources was managed individually and locally, and not as related to overall political regulations.

Both in the national and regional scenarios, environmental legislation was not ruled by a global criterion and most of the decisions made were based exclusively on short-term policies. Thus, only partial results were obtained from the regulations applied, with very scarce operational profits.

The new criteria of the modern environmental science showed the need to establish policies destined to address the environment's problems, the latter being conceived as a set or system, to which regulations are applied, whether they refer to each resource in particular (water, air, forests, etc.) or to the effect produced on them, such as pollution.

In Argentina, the public administrative initiatives as regards the Environment started to appear as from the observation of phenomena derived from urban growth and the development of industrial activity; this perspective was the basis for surveys and research and action plans and laws were drawn up in this country, mainly in charge of the public sector.

Simultaneously, the management of natural resources was limited, in general, to the consideration of the productive aspects of resource exploitation.

An attempt to improve this situation was the creation - through National Executive Branch Decree 2615/84 - of a National Organization which was to be specifically environmental, the Secretary of Natural Resources and Human Environment, dependent on the National Presidency.

As regards the legal framework, it is typical of developing countries to establish legislation on the basis of foreign models which correspond to other social and economic realities. The result is a lack of compliance, more or less accepted by all the parties with the legal status in force.

Argentina is a country which for many years has been undergoing serious economic and social problems. This situation produces a delicate equilibrium between the invasion of activities and population, in a territory with different environmental conditions and different opportunities for sustainable growth.

The responsibilities of national legislators allowed them to dispose, for colonization and development purposes, of available lands. For this reason, fiscal lands were transferred, without any restriction, to private parties, or continued to be assigned to the Federal Government.

In order to develop the country, a legal system was established for fiscal lands in frontier areas, in order to allow for the settlement of inhabitants through promotional measures and socio-economic stimuli, in order to take rational advantage of the natural resources and meet national security demands.







## LEGAL FRAMEWORK

### 1. INSTITUTIONAL AND LEGAL ASPECTS OF ENVIRONMENTAL PROBLEMS

In order to fulfill the requirements as stated by Secretary of Foreign Affairs of the Government of Canada, a study was performed on the legislation ruling the environmental preservation and development.

According to the political and institutional configuration corresponding to the federal form adopted by Argentina, it may be considered that the rule consists of the existence of jurisdictions which are shared between the Nation, the Provinces and the Municipalities. Regulations must therefore be interpreted in such a way that the different authorities can act harmoniously, avoiding interference or friction which might increase the powers of the central government to the detriment of provincial or municipal faculties, or viceversa.

In turn, there are national, provincial and municipal organizations in charge of the administration of the Environment, as well as laws or ordinances on the subject, which state the respective competences and the legislative scope of each one of these jurisdictional levels - national, provincial and/or municipal - which exercise functions related to the region's natural resources; either in the design of policies and strategies or in their management and preservation. Thus, a good regulation coverage is guaranteed.

In general, up to the last decade, environmental issues were managed as from a sectorial political perspective; each one of the resources was managed individually and locally, and not as related to overall political regulations.

Both in the national and regional scenarios, environmental legislation was not ruled by a global criterion and most of the decisions made were based exclusively on short-term policies. Thus, only partial results were obtained from the regulations applied, with very scarce operational profits.

The new criteria of the modern environmental science showed the need to establish policies destined to address the environment's problems, the latter being conceived as a set or system, to which regulations are applied, whether they refer to each resource in particular (water, air, forests, etc.) or to the effect produced on them, such as pollution.

In Argentina, the public administration initiatives as regards the Environment started to appear as from the observation of phenomena derived from urban growth and the development of industrial activity; this perspective was the basis for surveys and research and action plans and laws were drawn up in this country, mainly in charge of the public sector.

Simultaneously, the management of natural resources was limited, in general, to the consideration of the productive aspects of resource exploitation.

An attempt to improve this situation was the creation - through National Executive Branch Decree 2419/91 - of a National Organization which was to be specifically environmental: the Secretary of Natural Resources and Human Environment, dependent on the National Presidency.

As regards the legal framework, it is typical of developing countries to establish legislation on the basis of foreign models which correspond to other social and economic realities. The result is a lack of compliance, more or less accepted by all the parties, with the legal status in force.

Argentina is a country which for many years has been undergoing serious economic and social problems. This situation produces a delicate equilibrium between the location of activities and population, in a territory with different environmental conditions and different opportunities for sustainable growth.

The responsibilities of national legislators allowed them to dispose, for colonization and development purposes, of available lands. For this reason, fiscal lands were transferred, without any restriction, to private parties, or continued to be assigned to the Federal Government.

In order to develop the country, a legal system was established for fiscal lands in frontier areas, in order to allow for the settlement of inhabitants through promotional measures and social-economic nuclei, in order to take rational advantage of the natural resources and meet national security demands.



## 2. THE CONSTITUTIONAL ISSUE

The National Constitution has not expressly stipulated federal competence in environmental matters and therefore, in this field, it is necessary to apply the legal principle of Article 104, whereby the Provinces retain the responsibilities which the Constitution does not confer upon the National Government. Thus, the Provinces have retained various institutional, taxing, processing and general promotion responsibilities, amongst them, providing for the safety, health and morality of their inhabitants. However, there are some exceptions to this principle.

The first stems from Art. 67, paragraph 16, of the Constitution itself, which confers on the National Congress the responsibility of sanctioning rules to safeguard the prosperity and general welfare which legal doctrine has called "prosperity policing". In other words, matters relating to the country's prosperity and the improvement and welfare of all the provinces; this mandate was conferred because those who drew up the Constitution realized that, in such a vast country, the isolated elements of each province would not be enough to develop its own riches.

The scope of Art. 67, Paragraph 16, of the National Constitution and the diverse aspects presented by the policing power make it possible for the Nation occasionally to collide with the Provinces. Provincial powers give way to the federal order when it is opposed to general welfare purposes stipulated in national legislation.

Paragraph 12 of Article 67 is another exception to Article 104; in it, the National Constitution authorizes the Congress to rule economic exchanges with foreign countries or amongst the provinces, in a similar way to what is known as the commercial clause in the Constitution of the U.S.A.

This exclusive faculty conferred upon the Congress determines a specifically federal scope in all matters regarding interprovincial and international trade and transport.

The national, provincial and municipal authorities have specific responsibilities but, in certain circumstances, the authorities of the provinces and municipal governments can be overridden by the national government.

## 3. PROVINCIAL CONSTITUTIONS

In spite of the absence in the National Constitution of specific regulations guaranteeing environmental quality of life, some of the provincial constitution texts include stipulations on the environment.

### CATAMARCA

#### SECOND SECTION

#### LEGISLATIVE BRANCH

#### CHAPTER IV. Stipulations common to both chambers.

#### ART.110 - The Legislative Power must:

22: Draw up rules to protect the environment, the ecological system and the natural assets, ensure the preservation of the Environment, maintain the interrelation of its natural components, and rule on the acts which promote the recovery, conservation and creation of renewed sources.

#### SEVENTH SECTION

#### MUNICIPAL SYSTEM

ART. 252. These are attributes and duties of the Municipal Government, notwithstanding the provisions of Organic Charters and the Organic Law of Municipalities and Communes.

ART.9: Preserving the ecological system, natural resources and environment in order to guarantee the inhabitants' living conditions.

### CORDOBA

#### FIRST PART. Declarations, Rights, Duties, Guarantees and Special Policies.

#### TITLE 1: Declarations, Rights, Duties and Guarantees.

#### SECTION I: Declarations of the Policy of Natural Resources and the Environment.



ART. II. The Provincial State preserves the ecological balance, protects the environment and safeguards the natural resources.

SECTION III. Duties.

ART.38: The duties of every person are:

8: Avoiding environmental pollution and participating in ecological defence.

TITLE II. Special State Policies.

CHAPTER III. Ecology. Environment and Life Quality.

ART. 66: Any person has the right to enjoy a healthy environment. This right includes the right to live in a physical and social environment free from health-damaging factors, to the preservation of natural and cultural resources, and to the aesthetic values which allow for fitting (appropriate) human settlements as well as the preservation of the flora and fauna.

Water, earth and air - vital elements for man - are the objects of special protection in the Province.

The Provincial state protects the Environment, preserves natural resources ordering their use and exploitation, and safeguards the balance of the ecological system, without discriminating between individuals or reasons. For this purpose, it issues rules which ensure:

1. The efficiency of the principles of harmony of ecosystems and the integration, diversity, maintenance and recovery of the resources.
2. The compatibility of the physical, economic and social programming in the Province, to preserve and improve the environment.
3. A balanced distribution in the territorial urbanization.
4. The priority assignation of sufficient means to raise the quality of life in human settlements.

CHAPTER IV. Economy and Finance. Natural Resources.

ART 68: The Provincial State defends the renewable resources on the basis of their rational and integral use, preserving the archaeological, landscape and environmental assets.

The land is a permanent production asset. The law guarantees its preservation and recovery, attempts to avoid the loss of fertility, erosion, and regulates the use of applied technologies.

Public waters and their use are subject to the general interest. The State rules their rational use and implements necessary measures to avoid their pollution.

The Provincial State safeguards the survival and conservation of forests, promotes their rational exploitation and correct use, and fosters the development and improvement of the species and their replacement through forestation and reforestation, to preserve ecological stability.

The fields of mineral ore and fossils are exclusive, inalienable and essential rights in the Provinces; their exploitation must be preserved for the benefit of current and future generations.

The Provincial State acknowledges the faculties of the Federal Government to issue mining policies, fosters exploration, exploitation and benefits of mineral substances in the territory, keeps an inventory of its resources and issues laws for the protection of these assets in order to avoid their premature exhaustion through a rational exploitation and utilization.

**SECOND PART. Provincial Authorities.**

TITLE 1. Provincial Government.

SECTION I. Legislative Power.

CHAPTER IV. Attributes.

Attributes of the Legislative Power.

ART 110. The Legislative Power is entitled to:

19. Issue general regulations on the preservation of the urban soil, as referred to the territorial order and protecting the environment and ecological balance.



## JUJUY

FIRST SECTION. Declarations, Rights, Duties and Guarantees.

SECOND CHAPTER. Human Rights and Duties.

ART 22. The right to a healthy and ecologically balanced environment.

1. All the inhabitants of the Province have the right to enjoy a healthy and ecologically balanced environment, as well as the duty to defend it.

SIXTH SECTION. Legislative Power.

THIRD CHAPTER. Faculties.

ART.123. Attributes and Duties. The Legislative Power, as per this Constitution, has the authority to:

Paragraph 25: Issue laws on the preservation of the natural resources and the environment, the protection of animal and vegetable species, useful or autochthonous, for forestation or reforestation.

## LA RIOJA

### CHAPTER IV

#### ECONOMIC AND FINANCIAL SYSTEM

ART 66. Protection of the environment. The inhabitants have the right to a healthy and ecologically balanced environment, and the duty to preserve it.

The State shall promote the preservation, conservation, defence and improvement of the environment in the provincial territory to achieve an optimum life quality.

Any person whose actions may cause the degradation of the environment is obliged to take the necessary precautions to avoid this.

Any person may request, through protection proceedings, the cessation of the causes of the violation of these rights.

Para 2.: The Province, together with the corresponding organizations or with the cooperation of the institutions and associations devoted to this matter, shall be in charge of:

1. Avoiding, controlling, restricting and forbidding sources of contamination, avoiding their effects as well as the damages caused by erosion.
2. Eliminating or avoiding, through efficient vigilance and fiscalization, all elements which may cause the pollution of the air, water or soil and, in general, anything which in any way affects or can affect the environment of its inhabitants and the community.
3. Promoting the rational use of natural resources, safeguarding their renewal capacity and ecological stability.

Para 3: For the purposes of their preservation, conservation, defence and improvement, the sites with all their constituent elements whose function or features maintain or contribute towards the maintenance of the most convenient ecologic organization are hereby declared of public interest.

Para 4: The Province must promote, perseveringly and progressively, the improvement of its inhabitants' life quality.

ART 43. Duties of All Persons.

Para. 5: Avoiding environmental pollution and participating in ecological defence.

## RIO NEGRO

### RESPONSIBILITIES

#### Duties

ART 46: It is the duty of every inhabitant

To avoid environmental pollution and to participate in ecological defence.

### SECOND PART

#### FIFTH SECTION

#### NATURAL RESOURCES POLICY



## DOMINION.

### ART. 70.

The Province has the original property of the natural resources which exist in the territory, subsurface, air space and the sea adjacent to its coasts, and exercises it with the peculiarities established for each case. The law preserves its conservation and rational and integral use, on its own, or through an agreement with the Nation, with other Provinces or third parties, preferably in the zone of origin. The Nation may not dispose of the natural resources of the Province without a previous agreement through laws including the rational use of same, local needs, and the preservation of the resource and the ecology.

## WATER SYSTEM

### ART. 71.

Public waters located in its jurisdiction are the dominion of the state. They may have, or in future acquire, the ability to satisfy uses of general interest. The use and enjoyment of same must be awarded by the competent authority. The Waters Code rules the government, administration, unified and integral handling of the resource, the direct participation of the interested parties and the promotion of those enterprises and activities qualified as having social interest.

The Province shall agree with the remaining jurisdictions on the use of the common water basins.

## FISHING RESOURCES

### ART. 72.

The Province preserves, rules and promotes its fishing resources and scientific investigation in the maritime areas within provincial jurisdiction and the remaining waterways or surfaces; it fosters fishing activities and provincial ports. In matters of maritime jurisdiction, it coordinates its actions with those of the Nation.

## ACCESS TO, AND DEFENCE OF, THE SHORES

### ART. 73.

Free access is ensured, with recreational purposes, to the shores, river margins, seas and water surfaces of public domain.

The State regulates the necessary works for the defence of the coasts and the construction of circulation routes along the shores.

## TERRITORIAL ORDERING

### ART. 74.

The Province and the Municipalities shall order the use of the soil and regulate the urban and rural development according to the following guidelines:

1. The utilization of the soil must be compatible with the community's general needs.
2. The occupation of the territory must adapt to projects which address political and strategic aspects of democratic and participative planning on the part of the Community in the framework of the regional and Patagonian integration.
3. The fundamental functions to be fulfilled by urban areas for a better life quality shall determine the intensity of use and occupation of the soil, distribution of buildings, regulations on subdivision and determination of free (common) areas.
4. The fulfilment of the social purposes of urban activity through the intervention in the land market and the capture of the increase of the original value through the State's Work Plans.

## SEVENTH SECTION

### ECOLOGICAL POLICY

#### DEFENSE OF THE ENVIRONMENT

ART. 84. All inhabitants have the right to enjoy a healthy environment, free from health-damaging factors, and have the obligation to preserve it and defend it.

With this purpose, the State:

1. Avoids and controls the pollution of air, water, soil, maintaining an ecological balance.
2. Preserves the flora, fauna and landscape assets.
3. Protects the survival of autochthonous species; legislates on trade, introduction and release of exotic species which might endanger farming production or natural ecosystems.
4. For large enterprises which might endanger the environment, it demands previous surveys on environmental impact.
5. It regulates the production, release and expansion of harmful products, to ensure their rational use.



6. It establishes programs for the broadcast and education on environmental subjects at all educational levels.
7. It negotiates agreements with the Provinces and the Nation to ensure the principles detailed above.

## CUSTODY OF NATURAL ECOSYSTEMS

ART.85: The custody of the environment is in charge of an entity with police power, depending on the Executive Branch, with the attributes established by law.

Inhabitants are allowed to act with the authorities to defend the ecological interests recognized in this Constitution.

## SALTA

### TITLE II. Natural Resources

ART.78. Essential Ecological Processes. It is the obligation of the State and of all persons to protect ecological processes and the life systems on which human survival and development depend.

Public authorities issue a general law of natural resources stipulating the means and stimuli to reach the objectives aimed at, and sanctions acts or omissions which go against same.

ART.79. Of the Land. The land is an instrument of production and the object of rational exploitation for the adequate fulfilment of its social and economic function. It is everybody's obligation to preserve and recover, if necessary, its productive capacity and to stimulate the improvement of land-tilling techniques.

ART.80. Mining Resources. The Province promotes the exploration and exploitation of mining fields existing in its territory, looking after the correct implementation and fulfilment of the laws. It seeks the industrialization of the minerals at their place of origin, favours the settlement of companies and sees to the maintenance and development of communications and energy in mining areas.

-ART.81. Waters. Public domain waters in the Province are for the satisfaction of the needs of consumption and production. The public authorities preserve the quality and regulate on the use of superficial or subterranean waters making up the provincial domain.

The use of public waters for the population's consumption is the latter's right and may not be the object of licences in favour of private persons. The use of public waters for irrigation is a right inherent to the lots, in whose benefit it is awarded in the amounts and conditions determined by law, and by virtue of their social and economic function.

The public authorities stimulate the expansion of areas under irrigation and the formation of irrigation consortiums.

Public water users shall participate in all matters regarding the use of same.

The Province regulates the use of interprovincial rivers which originate or run through its territory, by means of laws or treaties with bordering Provinces.

- ART.82. Forests. Public authorities promote the rational use of forests, safeguarding the survival, conservation, and improvement of the species and replacement of those of greatest interest through forestation and reforestation.

For these purposes, the public authorities exercise the responsibilities corresponding to its policing powers.

- ART.83. Sources of Energy. Public authorities promote the utilization and preservation of sources of energy.

In the case of those located in the Provincial territory and whose exploitation corresponds to the Nation, agreements shall be reached with the Federal Government on policies of royalties and contributions to be collected by the latter. Besides, the public authorities negotiate the intervention of Provincial representatives in the board of federal entities in charge of the extraordinary exploitation of the royalties or contributions in favour of the regions or municipalities from which the resources are obtained.



Public authorities stimulate the research, development and use of non-conventional sources of energy.

## **SAN LUIS**

ART.54. The inhabitants have the right to a healthy, ecologically balanced human environment, and the duty to preserve it.

The Provincial State must avoid and control pollution and its effects and the damaging forms of erosion; it must order the territorial space in such a way that there are biologically balanced landscapes. It must create and develop reservations and natural parks, as well as classify and protect landscapes, places and animal species and the preservation of historical cultural values. Any person may, through protection proceedings, request the cessation of the causes of violation of these rights.

The State must promote the progressive improvement of the inhabitants' quality of life.

## **SAN JUAN**

- Art.58. The inhabitants have the right to a healthy human environment, ecologically balanced, and the duty to preserve it.

The Provincial State must, on its own, or through an appeal to popular initiative, avoid and control pollution and its effects, the damaging forms of erosion, the ordering of territorial space so that there are biologically balanced landscapes; create and develop reserves and natural parks and classify and protect landscapes, places and animal species and cultural historic or artistic values. Any person may request, through protection proceedings, the cessation of the causes of the violation of these rights.

The State must promote the progressive and speedy improvement of the quality of life of all its inhabitants.

## **SANTA FE**

### **CHAPTER III - Faculties.**

#### **Legislative Attributes**

-ART.54. The Legislative Assembly must:

Para.17: Issue laws for the protection and fostering of natural wealth.

## **TIERRA DEL FUEGO, ANTARTICA AND SOUTH ATLANTIC ISLANDS**

### **TITLE I. Rights, Duties and Guarantees.**

#### **CHAPTER II. On the Environment.**

Art. 25: Every inhabitant has the right to enjoy a healthy environment. This right includes living in a physical and social environment free from health-damaging factors, the preservation of natural and cultural resources and of the aesthetic values which allow for fitting human settlements, and the preservation of flora and fauna.

### **TITLE II. Special State Policies.**

#### **CHAPTER II. Ecology. Environmental Preservation.**

Art. 54. **Water, soil and air, as vital elements for man, are the matter of special protection on the part of the Provincial State.**

The latter protects the environment, preserves the natural resources ordering their use, and safeguards the balance of ecosystems without discriminating between individuals or regions.

For this purpose, it shall issue rules which ensure:

1. The efficiency of the principles of harmony of the ecosystems and the integration, diversity, maintenance and recovery of resources.
2. The compatibility of physical, economic and social programming in the Province with the preservation and improvement of the environment.
3. A balanced distribution of the urbanization in its territory.
4. The subsistence of the species of authohtonous flora and fauna; the control of trade and introduction



- and release of exotic species which might endanger the specific diversity, natural ecosystems and farming production.
5. The determination of responsibilities and the application of sanctions to any physical or legal person who pollutes the environment.
  6. The promotion of actions tending towards the protection of the population against atmospheric pollution, and the effects of excessive ultraviolet radiation generated by the depression of the stratospheric ozone layer.
  7. The priority assignment of sufficient means to raise the quality of life in human settlements. Isla de los Estados, Isla de Año Nuevo and adjacent islands are declared the intangible and permanent patrimony of all inhabitants of Tierra del Fuego, and an Ecological, Historical and Tourist Reservation.

#### Prevention and Control of Environmental Degradation.

Art. 56. In the Province it is forbidden to:

1. Perform tests or nuclear experiments for war purposes of any nature whatsoever.
2. Generate energy from nuclear sources.
3. Introduce and deposit nuclear, chemical, biological or any other type or nature of wastes, which have been proved toxic, dangerous, or which could become dangerous in the future.

### TUCUMAN

#### SECTION I

Art.36. Within the scope of its responsibilities:

1. The Province shall take all necessary legal steps to protect the purity of the environment, preserving the natural, cultural and aesthetic resources which result in a better quality of life. It shall forbid the introduction of materials or substances considered ecological waste, whether of nuclear or any other origin.
2. It shall reach agreements, with the Nation and other Provinces, in order to avoid environmental damage in its territory through actions performed outside same.
3. It must avoid and control pollution and the degradation of the environment through erosion, ordering its territorial space to preserve and increase a balanced environment.
4. It shall protect natural reserves established as such and shall create new ones in order to promote seedbanks for autochthonous flora, genetic fauna material, and sites where these can be studied.
5. It shall stimulate forestation, especially with autochthonous plants, both in private and in State lands.
6. It shall control the production, formulation, marketing and use of chemical, biological and nutritional products in accordance with international codes of behaviour.
7. In all cases, practical solutions shall be sought, respecting rules on expropriation.

#### 4. DEFINITION OF LEGISLATION AND APPLICATION AUTHORITIES

The creation of the Secretary of Natural Resources and Human Environment of the National Presidency (Decree No. 2419, 1991, and later decrees No. 177-92 and 181-92, dated January 24, 1992) clearly aim towards the institution of a sole national authority responsible for all rules referring to this matter (natural resources and human environment) in the nation.

The competence of the Secretary includes the "promotion, recovery and control of the Environment and the Preservation and Rational Use of the Natural Renewable Resources".

Also, this Secretary is in charge of coordinating relations with the councils and committees - both national and federal - already existing and to be created - related to ecological and human environment subjects.

In view of our country's federal organization, the mechanism of this structure must ensure the participation of the Provinces and foster the creation - both in the hinterland and in the municipalities - of horizontal coordination mechanisms which might more fully supplement an institutional network of Environmental Management.

On the other hand, the introductory clauses of Decree No. 177-92 state that "there must be a single application authority, with competence in all matters related to natural resources and the environment, it being a responsibility of the National Executive Branch to determine the organization which shall act as such".



## 5. APPLICABLE LEGAL FRAMEWORK

According to its Constitution, Argentina is a Republican, Federal country.

This makes it necessary to consider, as regards the Institutional and Legal instruments regulating economic activities and the organization and development of the society, three functional levels and hierarchies of Governmental Authorities with their corresponding legislation frameworks. These are: the National level, the Provincial level (Federal States) and the Municipal or Local level.

In the case of legislation in force, laws and decrees are considered as having a global and sectorial scope, and Municipal Ordinances, a general and particular scope, such as CODES ON THE USE OF URBAN SOIL, BUILDING CODES, SANITATION CODES.

### 5.1 National Law on Dangerous Wastes

Law 24,051 was sanctioned in December 1991 and entered into effect during the first days of April 1992 (as per its Article 66). It rules on the generation, manipulation, transportation, treatment and final disposal of dangerous wastes.

Although it applies to wastes generated or located in the national jurisdiction, Article 67 "invites the provinces and the corresponding municipalities, in the area of their competence, to issue regulations of the same nature as the one herein, for the treatment of dangerous wastes".

In turn, decree 177/92 of the National Executive Branch, on appointing the authority of application of said law, entrusts it with coordinating its own tasks with those of the Provincial Governments.

This picture thus tends to homogenize the legislation in this matter, as well as its application:

- a) Through legislation applicable to the places of national jurisdiction where wastes are generated or when they have effect upon them or upon a different jurisdiction;
- b) Through the successive issue of similar laws in the provinces, as per Article 67;
- c) Because the authority of application, when it does not act in its own jurisdiction (either by virtue of the location or generation or of the interjurisdictionality of the effects) shall act as coordinator vis-à-vis the provincial or municipal authorities in this matter.

It must not be forgotten that dangerous waste is a very vast concept (which may be defined, as shall be seen below, as any substance or object produced by any activity, which may cause direct or indirect damage to live beings or contaminate the soil, water or air, or cause any other type of environmental damage). The national law and its authority of application shall be the true guides in environmental aspects, at least as regards current or potential pollution.

It is therefore evident that not only shall the Secretary of Natural Resources and Human Environment be the responsible authority for Laws 22421, 22428, 23922, 24020 and 24051, as stated in Decree 177/92, but that it is the "only authority of application, competent in all matters related to the natural resources and the environment" as politically defined by the fourth introductory clause of the same decree.

Finally, it should be taken into account that the fifth introductory clause of Decree 177 retains for the Executive Branch the power to decide on the application of the laws; and Law 24051 itself, in its Article 62, tends towards the unification of the responsible authority, creating an Interministerial Committee, formed by representatives of all the ministries whose sphere of action is related to that of the Secretary of Natural Resources and Human Environment.

#### 5.1.1 The Definition of Dangerous Wastes

The law defines as dangerous wastes "anything which may cause damage, directly or indirectly, to live beings, pollute the soil, water, atmosphere, or the environment in general" (Art. 2).

This definition is supplemented by the Attachments to the law, which detail wastes considered dangerous "jure et



de jure", which does not exclude others which may be included in the previous definition.

Article 3 of Decree 181/92 in turn, defines "waste" (residue or garbage) as "any matter, substance or object produced in any activity and whose elimination, recycling, recovery, reutilization and/or final disposal is effected, about to be effected, or obligatorily effected, as well as all those which, in the judgement of the application authority are to be considered as such".

The only exception to the legal provisions of Law 24051 are home wastes (whose regulation is still exclusively under municipal jurisdiction) plus the by-products of vessels' normal operations, which have their own legal system, as well as nuclear wastes, which also have their own legal system save as regards the absolute prohibition to import them, introduce them or transport them, as per the same law (Arts. 2 and 3).

### 5.1.2 Generators of Dangerous Wastes

According to the legal system mentioned above, a generator is taken to mean the physical or legal person who, as a result of his activity, produces wastes qualified as dangerous.

Every generator must apply for his registration with the National Register of Generators and Operators of Dangerous Wastes and submit a sworn declaration including identification data, location, characteristics of the wastes generated, the manner and site of their treatment, the estimated annual amount, the description of the generating processes, a list of the dangerous substances used, the method of evaluation, procedure for the obtaining of samples, leaching analysis and evaluation standards, a list of the exposed staff and precautionary measures. Data must be updated annually.

Special conditions are imposed on generators of pathological wastes (Arts. 19 to 21).

The law not only establishes the obligations of generators with the Public Administration, but the civil responsibility for ecological damage. Article 22 provides that it is the responsibility of the generator for any damage caused by the wastes and Art. 45 assumes that, unless there is proof to the contrary, any dangerous waste is a risk in the terms of Art. 1113 of the Civil Code. It is impossible for third parties - naturally - to transmit or voluntarily abandon said risk (Art. 46) nor may they be considered exempt from responsibility by proving the guilt of a third party (Art. 47) nor does the responsibility disappear through the transformation or evolution determined by the treatment thereof, save in the case of faulty treatment made by a treatment or final disposal plant (Art. 48).

The law also establishes administrative penalties for infringers, but these do not exclude possible penal or civil responsibility (Chapter VIII, Arts. 49 to 54). Chapter IX identifies penally punishable behaviour, with penalties ranging from prison or imprisonment for up to 25 years, in the cases of poisoning or pollution of the water, soil or air, followed by the death of any person.

### 5.1.3 Regulations

The responsible authority shall establish, through regulations, the Register of Generators and Operators of Dangerous Wastes, for the registration of those who develop activities related with the generation, transportation, treatment and final disposal.

Once this requirement has been complied with, the authority shall deliver the Environmental Certificate exclusively stipulating its approval of the system of handling, transportation, treatment or final disposal. The certificate must be renewed annually. (Art. 5).

The responsible authority must issue a dictum within 90 days after the application for the certificate. The certificate is a necessary condition for the authorization of the operation of industries, treatment plants, etc.

### 5.2 National Law on Security, Hygiene and Labor Medicine

In 1972 National Law No. 19,587 was sanctioned, whose rules and regulations apply in the whole territory of the Republic. Essentially, the matters are defined by the preoccupation to protect and preserve the integrity of workers, and it aims at avoiding and diminishing labor accidents and diseases, neutralizing or isolating the risks



and their more determinant factors.

Decree No. 351 of 1979 provides for updating the technical methods and regulations referring to Medicine, Hygiene and Labor Security.

In 1991, the Labor and Social Security Ministry, according to the proposal made by the National Board of Labor Health and Safety and the dictums issued by the Board of Legal Matters, amended Attachment III corresponding to Article 61 of the Regulations updated by Decree No. 351/79 for the maximum concentrations permissible for chemical polluting agents, classifying them as mixtures, irritating particles and simple asphyxiating substances (gases or inert vapors).

Resolution No. 577 of the Ministry of Labor and Social Security, ruled on the use, handling and disposal of asbestos and its wastes in any situation entailing the risk of occupational exposure to asbestos suspended in the air, such as in the case of tubes and boiler linings.

This rule was issued in view of the elements missing in Decree No. 351 of 1979; amongst the background items of this Resolution are the proposals of Recommendation No. 172 of the O.I.T. (Recommendation on asbestos, 1986).

The Board of Labor Hygiene and Security, through Ruling No. 33, 1990, amended the regulations on the inscription in the Register of Carcinogenic Substances and Agents for those companies producing, using or obtaining - in intermediate processes - substances or agents detailed in Attachment I, taking as a reference the list drawn up by the International Agency for Research on Cancer of the World Health Organization.

As regards labor accidents and occupational diseases, National Law No. 24,028 passed in December 1991, applies. It describes the responsibilities and obligations of the employers. Its Article 2 establishes that the responsibility of the employer is to be assumed in all accidents caused in the cases established in the Law, with the exceptions specified in Article 7 - 1) damage caused intentionally by the worker; 2) force majeure, taken to mean the contingency which caused the damage to the worker, independent from the job; and 3) the performance of a pre-labor medical check-up exempting from all responsibility for all maiming sequels determined therein, notified in writing to the worker and checked by the application authority within fifteen (15) days of the check-up. On the other hand, responsibility is not presumed, as regards diseases whose origin or worsening are attributable to the job.

### 5.3 Rules in Force, National Level

- Law No.24,105. Treatment on the Environment signed with Chile is approved. Sanctioned on July 28, 1992.
- Law No. 24,051: Dangerous wastes: generation, transportation and treatment. Rules. Sanctioned on December 17, 1991. In effect as from January 8, 1992.
- Law No. 24,028. Labor accidents and occupational diseases. Sanctioned in December 1991.
- Law No. 23,922. Basle Convention on the control of trans- border movements of dangerous wastes and their elimination, signed in Basle, Switzerland, March 23, 1989.
- Law No. 23,896. Treaty on the creation of an interjurisdictional authority for the basins of the rivers Limay, Neuquén and Negro. Approval. In effect as from October 26, 1990.
- Law No. 23,724. Vienna Convention for the protection of the ozone layer. Approval. In effect, October 9, 1989.
- Law No. 23,419. Natural Resources. State Companies and Corporations. Obligation to inform the Executive Branch on any kind of exploration implying drilling through layers or subsurface rocks. Promulgated on November 6, 1986.
- Law No. 22,907. Memorandum in agreement with the U.N. Program for the Environment, signed in Nairobi, Kenya, May 24, 1983. Approval.
- Law No. 22,428. Legal system for the promotion of private and public actions aiming at the preservation and productive recovery of soils. Buenos Aires, March 16, 1981. (Regulatory Decree 691- 81).
- Law No. 22,421. Natural Resources Law for the protection and conservation of wild fauna. Annulment of Law No. 13,908. Sanctioned December 5, 1980.
- Law No. 22,351. Law of National Parks and Reservations and Natural Monuments. Sanctioned December 5, 1980.
- Law No. 22,190. System for the prevention and vigilance of the pollution of waters or other elements of



- the environment by polluting agents generated by vessels and naval artifacts. Annulment of Law No. 20.481. Sanctioned March 11, 1980.
- Law No. 21,947. Agreement on the prevention of sea pollution by spillage of wastes and other matter, open to signature on December 29, 1972, in London, Mexico, Moscow and Washington. Approval. Sanctioned March 6, 1979.
- Law No. 21,900. Legal system of fiscal lands in frontier areas. Sanctioned in 1978.
- Law No. 21,836. Agreement on the protection of the world cultural and natural patrimony. Buenos Aires, July 6, 1978.
- Law No. 21,608. Legal System of Industrial Promotion. Buenos Aires 23 July, 1977. Annulment of -Law 20,560.
- Law No. 20,324. National Sanitary Works Board. New denomination of the previous General Administration of Sanitary Works. Formed as a State Corporation. Sanctioned and passed on April 27, 1973.
- Law No. 20,284. Law for the preservation of air resources. Public Health. Sanctioned and passed on April 16, 1973.
- Law No. 19,995. Defence of Forestry Assets. Authorizations granted for the use of areas. Regulations. Penalties for infractions. Amendment of Articles Nos. 39,41 and 42 of Law No. 13,273. Sanctioned and passed in December 1972.
- Law No. 19,587. Law of Labor Hygiene and Safety (Regulatory Decree 351, 1978). Buenos Aires, April 21, 1972.
- Law No. 13,660. Safety in the installations for the manufacture, transformation and storage of solid, liquid and gaseous mineral fuels. Regulatory decree. Sanctioned in 1949.
- Decree No. 177. Rules on the structure of the Secretary of Natural Resources and Human Environment. Dated 1992.
- Decree No. 181. Rules on the structure of the Secretary of Natural Resources and Human Environment. Dated 1992.
- Decree No. 2419. Creation of the Secretary of Natural Resources and Human Environment, within the scope of the National Presidency. Dated November 12, 1991.
- Decree No. 2224. Recommendations taken during the XV Consultant Meeting of the Antarctic Treaty. a pproval. Dated October 23, 1991.
- Decree No. 674. System to which industrial and or special establishments must adapt when they produce, either continuously or discontinuously, residual spills or mud originated by the purification of the former, into drains, pluvial drains, or a body of water. Scope of Application. Dated Buenos Aires, May 24, 1989.
- Decree No. 1886. Prevention and vigilance of the contamination of waters or other elements of the environment through agents generated by vessels or naval artifacts. Regulation of Law No. 22,190. Incorporation of Title VIII to REGINAVE.
- Decree No. 2541. Industrial Promotion. Regulation of Law No. 21,608. Dated August 26, 1977.
- Decree No. 4858. Preservation of the Environment. National Environment Policy. Guidelines for its enforcement by the boards corresponding to the National Public Administration. Dated May 23, 1973.
- Decree No. 922. Regulatory Decree of Law No. 20,560 for Industrial Promotion. Dated December 1973.
- Resolution No. 577 (Labor and Social Security Ministry). Refers to the use, handling and disposal of asbestos and its wastes, taking into account the regulatory void in Decree No. 351 of 1979, corresponding to Law No. 19,587. Dated July 1991.
- Resolution No. 444 (Labor and Social Security Ministry). Rules for the use, handling and safe disposal of polychlorated diphenyls and their wastes. Approved on April 23, 1991.
- Resolution No. 149. National Energy Secretary. Resolution of 1990.
- Provision No. 33 (Labor and Social Security Ministry - National Board for Hygiene and Labor Safety). Attachment III, on carcinogenic substances and agents (based on the list drawn up by the International Agency for Research on Cancer, Lyons, France, WHO).

#### Municipality of the City of Buenos Aires

Sanitation code of the Municipality of Buenos Aires. Ordinance No. 39.025, dated May 31, 1983.

Urban Planning Code. Municipality of Buenos Aires ordinance N° 44.092. Its ammendments and complements, dated. December 1985

#### **Rules on Liquid Effluents at a National Level**



Decree No. 674 of 1989, issued by the National Executive Branch, establishes the system for industrial establishments which produce, either continuously or discontinuously, residual spills in order to ensure the quality of the water and the receiving bodies within levels according to those required by the legitimate use of those waters, thus avoiding their pollution and preserving them from deterioration.

One of the aims of this Decree is avoiding the accumulation of toxic or dangerous compounds which might contaminate subterranean and surface waters. The limit of total weighted polluting load shall be fixed by the Secretary of National Water Resources, at the Proposal of the National Sanitary Works Board.

Infractions shall be penalized as per Decree No. 674, Article No. 15.

Decree No. 776, of May 1992, establishes the passage of certain control responsibilities, previously exercised by the National Resources Secretary on the Sanitary Works Board, to the Secretary of Natural Resources and Human Environment.

#### 5.4 Legislation in Force at Provincial and Municipal Levels

The study of the provincial legislation as regards the regulation and administration of the environment, in those regions where compressor plants are installed and gas pipelines laid, entails an integral approach. In this respect, we submit a summary of applicable legislation in the priority areas (due to their installations) such as Chubut (Municipality of Comodoro Rivadavia), Santa Fe and Buenos Aires (Municipality of Bahía Blanca).

We enclose, besides, a list of provincial laws which deal with the environmental subject in general and with natural resources in particular, environmental pollution, etc., taking into account that this is a "scattered" legislation, tending towards unification.

##### 5.4.1 Buenos Aires Province

- Law No. 11,074. Natural Provincial Reserve for Multiple Uses. Declaration of Islands Embudo, Bermejo and Trinidad, located in the Bahía Blanca Bay. Sanctioned March 21, 1991. Passed April 19, 1991.
- Law No. 10,907. Regulation on reservations and natural parks. Passed June 6, 1990.
- Law No. 10,764. Law for the Territorial Ordering and Use of the Soil. Amendment of Article 24, Law 8,912/77. Passed on May 17, 1989.
- Law No. 10,385. Provincial Hydraulic System. Amendment of Law Decree No. 10,106 of 1983. Passed on April 17, 1986.
- Law No. 8912. Law of territorial ordering and use of the soil. Annuls Laws Nos. 695, 3,468, 4,739, 8,694 and 8,809. Passed on October 24, 1977.
- Law No. 7,229. Provisions on the location, construction, installation and equipment for the authorization and operation of industrial establishments. Official Bulletin of Argentina, November 15, 1966.
- Law No. 5,965. Law of Protection of the Sources of Supply and Courses and Bodies receiving Water and the Atmosphere. Official Bulletin of Argentina, December 2, 1958.
- Decree No. 7488. Legal system on sanitary-industrial policy in the Province. La Plata, December 29, 1972.
- Decree No. 3870. Protection of the Supply sources to water-receiving bodies and courses, and the atmosphere. Amendment of Decree No. 2009/60. Dated 1990.
- Decree No. 3,389. Territorial ordering and use of the soil. Ordered text, 1987, of Law 8912. Dated March 7, 1987.
- Decree No. 2009. Protection of the sources of supply and water-receiving bodies and courses, and the atmosphere. Rules on Law No. 5,965. Official Bulletin of Argentina, March 21, 1960.
- Decree No. 1869. Partial veto of Law 10907. Dated March 24, 1990. (Official Bulletin of the Province of Buenos Aires, La Plata, June 6, 1990).

##### Municipality of Bahía Blanca

- Ordinance 5,822. Control of "Smoke" in the County of Bahía Blanca. Dated July 23, 1990.
- Ordinance No. 5420. Control of effluents and liquid wastes. Regulatory Decree No. 260, 1990. Dated 1989.
- Ordinance No. 5,319. Regulation of the Container Service and the Vehicles used for its transportation. Dated March 27, 1989.



- Ordinance No. 4,678. Regulation of the Compacting and/or Collection of Home Wastes. Dated April 14, 1987.
- Ordinance No. 4,485. Protection of the Atmosphere. Dated July 28, 1986.

#### **Regulation of Liquid Effluents in the Province**

The Province of Buenos Aires is ruled by Law No. 5965 - on the protection of the supply sources and the water-receiving bodies or courses and the protection of the atmosphere, and its Regulatory Decree No. 2009, dated February 25, 1960, amended in 1990 by Decree No. 3870.

At present, in the Municipality of Bahía Blanca, the Municipal Council has issued a resolution whose aim is to amend Decree No. 2009, through Decree No. 3970, 1990, which describes municipal responsibilities for the control and preservation of the sources and water-receiving bodies and courses.

However, Ordinance 5420, dated February 27, 1989, still rules. It refers to the control of effluents and liquid wastes. Its provisions shall be enforced through the Laboratory of the Liquid Effluents Area of the Environmental Sanitation Department of the Municipality of Bahía Blanca.

#### **5.4.2 Catamarca Province**

- Law No. 4,616. Water. Incorporation of Art. No. 243 bis to Law No. 2577. Sanctioned and passed July 17, 1991.
- Law No. 4,395. Agrochemicals. Rules on their manufacture, use and storage. Phytosanitary Fund. Creation. Passed on November 17, 1986.
- Law No. 2,577. Water. Passed in 1974.
- Law No. 2,480. Soils. Declaration of the Provincial Interest in their Conservation. Sanctioned and Passed July 31, 1972.
- Law No. 2,308. Protection of wild fauna. Sanctioned and passed July 7, 1969.
- Decree No. 2,579. Protection of Wild Fauna. Extension of Article 37, Decree No. 386/70. Dated August 19, 1984.
- Decree No. 386., Hunting. Regulations of Law 2,308, March 23, 1970.
- Decree No. 265. Hunting. Amendment of Decree No. 386/70, ruling Law 2,308 on the protection of wild fauna. Dated March 13, 1980.

#### **5.4.3 Córdoba Province**

- Law No. 7,883. Federal Council for drinking water and sanitation (COFAPYS). Adhesion of the Province to National Law No. 23,615. Sanctioned April 24, 1990.
- Law No. 7,343. Law for the Preservation, Conservation, Defence and Improvement of the Environment. Sanctioned on August 29, 1985.
- Law No. 6,964. Law of Natural Areas in the Province. Sanctioned and passed on August 12, 1983.
- Law No. 6,748. Conservation of soils. Annulment of Article 4 of Law No. 6,628. Sanctioned and Passed June 17, 1982.
- Law No. 6,629. Agrochemical products. Regulations for their use. Sanctioned and passed on September 25, 1981.
- Decree No. 3,290. Regulations of Law 7,343 on Environment. Dated Córdoba, October 18, 1990.

#### **5.4.4 Chubut Province**

- Law No. 3739 Prohibition to introduce toxic wastes in the provincial territory. Rawson, July 30, 1992.
- Law No. 2,226. Amendment of Law No. 1503. Rawson, October 26, 1983.
- Law No. 1921. Conservation of Soils. Adhesion to National Law No. 22,428. Sanctioned and passed on May 4, 1981.
- Law No. 1,503. Measures necessary for the natural preservation of water, both surface and subterranean. Sanctioned and passed on July 27, 1977.
- Law No. 1119. Soils. Declaration of the public interest of their preservation. Sanctioned and passed on December 13, 1973.
- Decree No. 2099. Rules Law No. 1503. Dated January 1978.
- Decree No. 1403. Extension of the grading of penalties on infractions to Law No. 1503. Rawson, October



26, 1983.

Decree No. 1402. Amendment of Decree No. 2099, ruling Law 1503. Rawson, October 26, 1983.

#### **Municipality of Comodoro Rivadavia**

Ordinance No. 3,779. Rules on the Guidelines on Environmental Policy. Attachment. Municipal Ecological Code. Dated December 9, 1991.

#### **Regulation of Liquid Effluents in the Province**

Through Law No. 1,503 the Province of Chubut adopts measures for the natural preservation of waters. This law was amended by a later one, No. 2226, passed in 1983.

The Municipality of Comodoro Rivadavia, Province of Chubut, defined the guidelines of an environmental policy through Ordinance No. 3779, which approves the "Municipal Ecological Code", whose aim is the preservation, conservation, defence and improvement of the environment in the whole municipality of Comodoro Rivadavia. Section II of this rule includes all matters dealing with liquid, solid and gaseous effluents.

The Permanent Advisory Committee is in charge of intervening and counselling in all matters related to pollution and preservation. It is formed by representatives of public and private organizations in the Municipality.

Chapter II of the Code rules on water resources and Article 22 establishes that the Water Laboratory Board of the Municipality of Comodoro Rivadavia shall determine the controlling mechanisms therefor.

#### **5.4.5 Jujuy Province**

- Law No. 4,542. Law on the Protection of Trees and Forests. Sanctioned November 29, 1990. Passed December 11, 1990.
- Law No. 4,474. Wild and/or Exotic animals. Production with economic purposes or for the preservation of ecological balance. Declared of Provincial Interest. Rules. Sanctioned November 22, 1989. Passed November 29, 1989.
- Law No. 4,396. Water Code, Province of Jujuy. Amendments. Sanctioned and passed on February 24, 1989.
- Law No. 3,785. Preservation of the Soil. Adhesion to National Law No. 22,428. Sanctioned and passed on June 8, 1981.

#### **5.4.6 La Pampa Province**

- Law No. 1,074. Preservation of the soil. Adhesion to National Law No. 22,428. Sanctioned and passed on June 29, 1981.
- Law No. 894. Promotion of Water Uses. Sanctioned and passed on December 13, 1985.
- Law No. 758. Preservation of the agricultural soil. Dated 1969.
- Law No. 502. Declares the obligatory protection of non-predator wild fauna. Sanctioned and passed on May 26, 1969.
- Law No. 155. Declares of public interest, for the whole provincial territory, the preservation of the agricultural soil, i.e., the preservation of its productive capacity. Sanctioned and passed on May 19, 1969.
- Decree No. 147. Rules Law No., 502. Dated February 23, 1970.

#### **5.4.7 La Rioja Province**

- Law No. 4,295. Water code. Sanctioned and passed on December 5, 1983.
- Law No. 4,150. Protection and preservation of wild fauna. Adhesion to National Law No. 22,428. Provincial application authority. Sanctioned and passed August 9, 1982.

#### **Municipality of General Sarmiento**

Ordinance No. 448. Preventive Zoning Code. Dated September 21, 1979.



#### 5.4.8 Mendoza Province

- Law No. 5,100. Preservation of Air Resources. Adhesion to National Law No. 20,284. Sanctioned May 28, 1986. Passed June 23, 1986.
- Law No. 4,602. Wild Fauna. Adhesion to National Law No. 22,428. Sanctioned and passed on September 22, 1981.
- Decree No. 155. Preservation of Soils. Rules Law No. 4,597, in adhesion to National Law No. 22,428 (Official Bulletin of the Province of Mendoza, published February 23, 1982).

#### 5.4.9 Neuquén Province

- Law No. 1,914. Law on the conservation, preservation, defence and improvement of the environment. Amendment. Passed October 1, 1991.
- Law No. 1875. Environment Law. Sanctioned and passed on December 21, 1990.
- Law No. 1859. Insecticides and agrochemicals for agricultural and industrial use. Control of their manufacture, sale and application. Rules. Passed November 9, 1990.
- Law No. 899. Water code. Sanctioned and passed on September 26, 1975.

#### Regulation of Liquid Effluents in the Province

In the Province of Neuquén, the legal instrument applicable to the control of liquid spills is Law No. 899 of 1975, "Water Code". This Law has not been ruled. However, the application authority is the Provincial Water Administration, which is guided by the text of a "Project for the Regulations of Industrial Effluents".

The quality demanded from the effluents is established in the project on the basis of minimum conditions (Article 20, similar text to Decree 2009, 1970, of the province of Buenos Aires) and a detailed study to take into account: first, the base of the receiver; second, the flow of the effluent(s) in the same receiver body; third, the quality objectives of surface waters.

#### 5.4.10 Río Negro Province

- Law No. 2,472. Law of Radioactive and Toxic Wastes. Sanctioned and passed on December 27, 1991.
- Law No. 2,392. System for the quality control and protection of the Provincial Water Resources. Passed October 30, 1990.
- Law No. 2,175. Regulation of Insecticides and agrochemicals. Sanctioned and passed in 1987.
- Law No. 1,550. System aimed at eradicating unpleasant noises. Sanctioned and passed in 1987.
- Decree No. 2,110. Regulating Law No. 2,175. Dated 1988.
- Decree No. 1628. Implementation of the organic structure of the Provincial Program for the Improvement of Working Conditions. Dated 1985.

#### Regulation on Liquid Effluents in the Province

In the Province of Río Negro, in 1978, Law No. 1334 was passed, known as the "Industrial Drains" law, together with Regulatory Decree No. 1244.

The application authority is the Provincial Waters Department. In the law it is obligatory to give previous treatment to the receiver bodies and it awards the Department sufficient powers for applying sanctions and closing down establishments.

The limits of allowed concentrations are established in the decree.

To date, a Law Project called "System for the Quality Control and Protection of the Provincial Hydro Resources" has been partially approved in the Provincial Legislative Branch. This Project annuls Law No. 1334, quoted above, and includes in its text, as well as in the Regulatory Resolution Project, matters and items which would make for a stricter compliance of private parties than that obtained so far.

We wish to point out that during 1988 the "Law on Uses of Insecticides and Agrochemicals" was passed. The responsible authority is the Ministry of Natural Resources. It is obligatory to register any insecticide and agrochemical marketed or used in the Province. These will be classified as restricted, or freely sold, according to



their risk level.

Its Article 17 forbids unloading effluents containing insecticides or agrochemicals without previous treatment. Sanctions provided are: confiscation by the province, temporary or permanent closing down, and penalties.

#### 5.4.11 Salta Province

- Law No. 6,635. Forestry Promotion System. Sanctioned September 12, 1991. Passed October 4, 1991.
- Law No. 5,279. Wild Fauna. Protection and Preservation System. Substitution of Article 7 of Law 3,571. Annulment of Law 5,054. Sanctioned and passed May 9, 1978.
- Law No. 4,459. General Water Administration. Authorization to collect surcharges and penalties. Annulment of Decree No. 242, 1963. Sanctioned and passed March 3, 1972.
- Law No. 3,571. Regulations on hunting and fishing, sanctioned September 29, 1960. Passed October 18, 1960.

#### 5.4.12 San Luis Province

- Law No. 4,884. Forestry Promotion System. Beneficiaries. Sanctioned October 22, 1990. Passed October 26, 1990. (Official Bulletin, Province of San Luis, November 21, 1990).
- Law No. 4,268. Preservation of the soil. Adhesion to National Law No. 22,428. Sanctioned and passed September 28, 1981. (Official Bulletin, Province of San Luis, October 19, 1981).
- Law No. 3,876. Water Code. Sanctioned and passed June 12, 1978.
- Law No. 3,400. Protection and preservation of soils, pastures and natural forests. Sanctioned and passed September 30, 1971.

#### 5.4.13 Santa Cruz Province

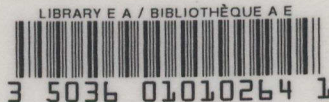
- Law No. 2,210. Provincial natural and cultural patrimony. Amends Article 2 of Law No. 1,289. Passed January 7, 1991.
- Law No. 1,427. Preservation of the soil. Adhesion to National Law No. 22,428. Passed October 30, 1981.
- Decree No. 900. Preservation of the Soil. Regulations on Law No. 1,427, in adhesion to National Law 22,428. Dated August 11, 1982.

#### 5.4.14 Santa Fe Province

- Law No. 10,753. Nuclear plants and/or deposits. Prohibition of their installation within the province. Annulment of Law No. 10,278. Passed December 26, 1991.
- Law No. 10,703. Penalties code. Sanctioned and passed on December 4, 1991.
- Law No. 10,552. Preservation and handling of soils. Sanctioned in 1991.
- Law No. 10,550. Amending Law 3,473 , Articles 17 and 18. Sanctioned and passed January 7, 1991.
- Law No. 10,278. Prohibition to dump nuclear wastes in the Province. Sanctioned and passed December 6, 1988.
- Law No. 9,138. Passage of sanitation functions from the Social Action and Public Health Ministry of the Province to the Municipality of Santa Fe. Sanctioned January 4, 1983.
- Law No. 9,004. Protection of Public Trees. Sanctioned and passed May 24, 1982.
- Law No. 8,711. Law of Sanitary Works. Sanctioned and passed December 3, 1980.
- Law No. 8,478. Industrial Promotion System in the province. Annulment of Law No. 6,410. Sanctioned and passed August 31, 1979.
- Law No. 7,175. Interprovincial coordinating entity for fauna. Ratification of agreement dated 12/11/73 with the provinces of Entre Ríos, Salta, Corrientes and Chaco for its creation. Sanctioned 9.6.74. Passed September 18, 1974.
- Law No. 7,461. Regulation of agrochemicals. Sanctioned July 18, 1975.
- Law No. 6,916. Sanitary Works Sewers. Terms for the construction of installations to purify sewage water. Sanctioned and passed April 2, 1973.
- Law No. 6,635. System of Forestry Promotion. Annulment of Article 31, Law No. 5,242. Passed October 4, 1991.
- Decree No. 763. Protection of public trees. Regulations for Law 9,004. Dated March 19, 1992.
- Decree No. 291. Industrial Promotion. Text ordered on Regulatory Decree No. 3,856 of 1979. Dated



February 9, 1983.



## Regulation of Liquid Effluents in the Province

In the Province of Santa Fe, in 1980, Law No 8711 was passed, on Sanitary Works, creating the Provincial Board of Sanitary Works under the Ministry of Public Works and Services of the Province.

The Board is authorized to take the necessary steps to clear water-courses in case they may affect the health in cities or villages, to avoid direct or indirect pollution and to determine the closing down of industrial establishments which do not comply with its provisions, and to exercise the control of the spills of liquid wastes.

Article 37 of the Law empowers the Board to collect penalties in the cases of infractions committed by industrial establishments which cause the pollution of water courses or damages to the Board's installations.

- Law No. 10,550 of the Province of Santa Fe incorporates Art. 74 bis of Law No. 3,474 which sanctions the Penalties Code, related to the Pollution of Water Resources, which punishes with a ninety days imprisonment and/or penalties the use or ilegal incorporation of toxic or dangerous wastes, industrial effluents, or any other substance, contaminating directly or indirectly public or private waters, whether running or not, surface or subterranean.

### 5.4.15 Santiago del Estero Province

- Law No. 5,787. Environment and Natural Resources. Regulation sanctioned on October 25, 1989. Passed November 24, 1989.
- Law No. 5,573. Protection of Renewable Resources. Regulations on hunting and fishing. Amendment of Article 5, Law 4,802. Creation of the General Fauna, Fishing and Hunting Board. Sanctioned November 18, 1986. Passed November 28, 1986.
- Law No. 5,501. Preservation of the soil. Adhesion to National Law 22,428 and its Regulatory Decree No. 681, 1981. Sanctioned and passed December 21, 1981.
- Law No. 4,869. Water Code. Annulment of Laws No. 2,186, 1,518, 4,513, 4,612 and 4,756. Sanctioned and passed April 21, 1980.
- Law No. 4,802. Protection of renewable resources. Hunting and fishing rules. Sanctioned and passed November 20, 1979.

### 5.4.16 Tucumán Province

- Law No. 6,291. Agrochemicals Rules for their use. Sanctioned and passed October 21, 1991.
- Law No. 6,253. Environment. Rules for its preservation and defence. Sanctioned and passed on September 16, 1991.
- Law No. 5,370. Irrigation. Sanctions for violations of Law No. 731. Sanctioned and passed February 18, 1982.
- Law No. 5,369. Municipalities. Attention, Control and Care of the Ecosystem. Extension of Articles Nos. 44 and 45 of Organic Law No. 5,181. Sanctioned and passed February 17, 1982.
- Law No. 5,344. Preservation of the soil. Adhesion to National Law No. 22,428. Substitution of Article 1 and annulment of Articles 2 and 3 of Law No. 5,294. Sanctioned and passed November 20, 1981.
- Law No. 5,294. Preservation of the soil. Adhesion to National Law No. 22,428 with the exception of some provisions. Sanctioned and passed June 4, 1981.
- Law No. 5,181. Organic Law of Municipalities. Ordered Text. Dated May 30, 1980.

### 5.4.17 Tierra del Fuego, Antártica and South Atlantic Islands Province

- Law No. 469. Natural reservations. Creation and determination of various areas. Passed September 19, 1991.
- Law No. 434. La Marcial Protected Natural Area. Created to preserve the essential ecological systems, genetic diversity and natural resources. Passed August 3, 1990.

